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NEWSPAPER
001

NetworkWorld

January 13, 1997

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JANUARY 13, 1997 VOLUME 14, NUMBER 2

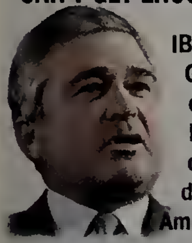
NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

APPLE HANGS IN

Chief Technology Officer Ellen Hancock outlines OS strategy. More from MacWorld Expo. Page 8.

CAN'T GET ENOUGH OF JAVA



IBM Chairman Lou Gerstner says the company will spend hundreds of millions of dollars on Java development. Among the efforts:

- Delivery of Java virtual machine on OS/2 and AIX; beta releases on Windows 3.1, OS/400 and OS/390.
- Introduction of CICS Java Gateway, which lets Java applets launch CICS server transactions with no changes to server code; Java support for CICS server in the works.
- Rollout of Java support in Notes clients; Domino server support set for this year.

Java offers new way to write CICS applications

IBM ON THE MOVE

By John Cox

Winchester, England

IBM is quietly modifying its CICS transaction processing system to run server applications written in Java.

The effort — involving work at a key IBM laboratory here and a project with a large financial services customer — will enable customers to build a new breed of transaction-oriented applications written in Java. It will also let them enhance the huge installed base of CICS programs used for heavy-duty applications, such as airline reservation systems.

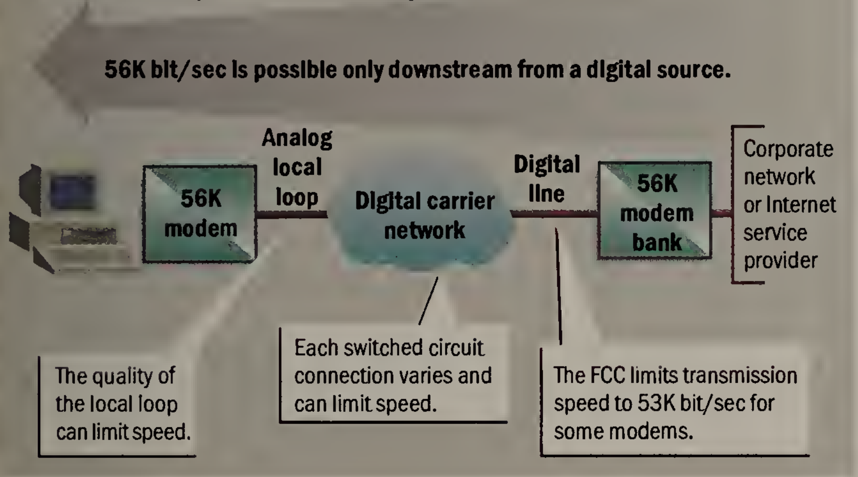
IBM will invest hundreds of millions of dollars in Java development during the next few years, but nothing to date reveals so clearly the huge bet IBM is placing on Java as does its CICS project. It will affect IBM customers in several important ways:

- Every Java programmer be-

See CICS, *page 12*

DOES 56K MEAN 56K?

Trials of 56K bit/sec modems are designed to reveal the true speeds users can expect.


56K bit/sec is possible only downstream from a digital source.
56K modem
Analog local loop
Digital carrier network
Digital line
56K modem bank
Corporate network or Internet service provider
The quality of the local loop can limit speed.
Each switched circuit connection varies and can limit speed.
The FCC limits transmission speed to 53K bit/sec for some modems.

56K modems face test

Circuit quality, signaling could slow down new devices.

By Tim Greene

A wave of 56K bit/sec modems is due to crash over the industry this year, but they may not live up to their name.

Hoping to get a fix on the modems' exact performance, Shiva Corp. and Microcom Corp. will start a joint trial next month to test how hard the new technology will be slowed by a raft of factors, among them the length and gauge of the local loop, the kind of line cards and signaling used by the carrier, and an echo on the line.

Those factors are known to impair the performance of current V.34 modems that max out

See Modems, *page 10*

For more on Shiva, see story on page 10.

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Access Network World Fusion using the number in yellow. See page 5 for details.

Novell electronic commerce effort bogged down

By Christine Burns

Orem, Utah

Novell, Inc. was supposed to start the new year with a strong electronic commerce offering based on IntranetWare.

Instead, the company is struggling to ship a beta version of its electronic commerce software and is redoing its product plans.

Company officials refused to detail any changes to their plan or provide a new ship date for the software. But they did confirm a beta release for late this quarter. The new plan is awaiting approval from company President

See Novell, *page 12*

IBM agents are secret no more

Work focuses on agent-based applications, interoperability.

IBM ON THE MOVE

By Michael Cooney

Raleigh, N.C.

IBM wants to take care of your dirty work.

Looking to eliminate the tedious tasks that face many network users each day, IBM this year will roll out a slew of intelligent agent-based applications that can take care of everything from helping users navigate the Internet to more efficiently handling E-mail.

The products will come out of IBM's fledgling Intelligent Agent Center of Competence, which is also establishing a development framework under which agent-based products from different vendors can work together. While IBM declined to specify how much it is investing in agent technology development, it is clear that agents have become an area of emphasis.

"By the year 2000, every significant application will have some sort of agent capability," said Peter Janca, manager of IBM's intelligent agent software

See IBM, *page 37*

WEB WATCH: PART ONE

WHERE THEY'LL END UP, NOBODY KNOWS

Internet/intranet start-ups are everywhere, so how do you choose among them? We'll give you some ideas about what to look for as we track the ups and downs of three newcomers — BackWeb, HAHT and Novera — throughout the year in a series of "Web Watch" stories. For the first installment, see page 44.

Nothing stops a spammer

By Todd Wallack

Even the King of Spam has his limits.

Sanford Wallace's Cyber Promotions, Inc., which has gone to court to defend its right to send junk E-mail, shut down a fellow spammer's E-mail account this month for going too far.

The reason? Cybergen Health of Lincolnwood, Ill., warned 'Net users that it would retaliate against anyone who complained about its unsolicited letters touting hair-regeneration tonics.

"If we are flamed, we will (a) FLAME YOU 1,000 times as

See Spammers, *page 12*

No canned spam here. Link to more resources online.

- Tips for limiting spam on Unix-based mail systems
- One spammer's tips for hiding your identity
- Spam-related legal cases

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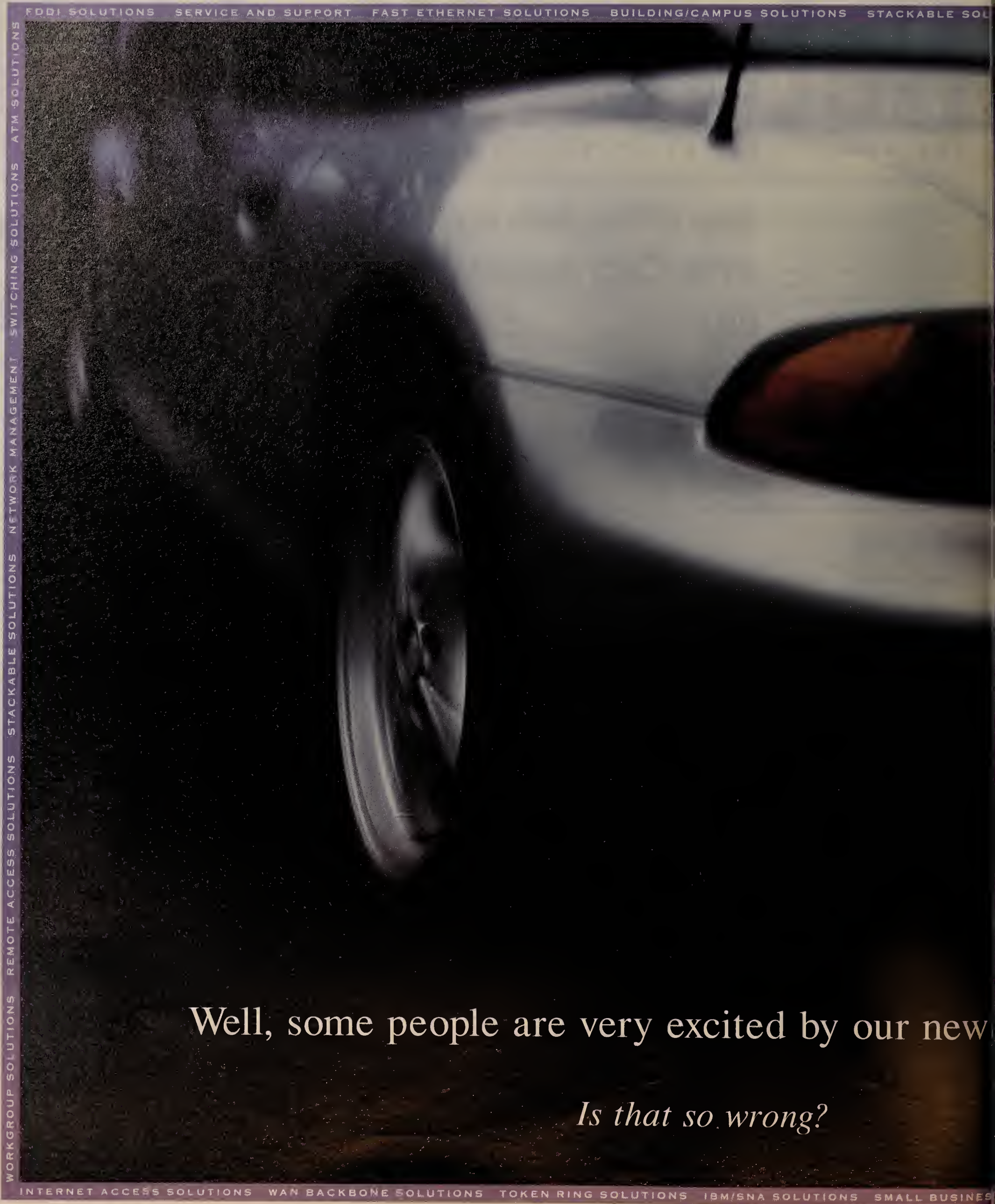

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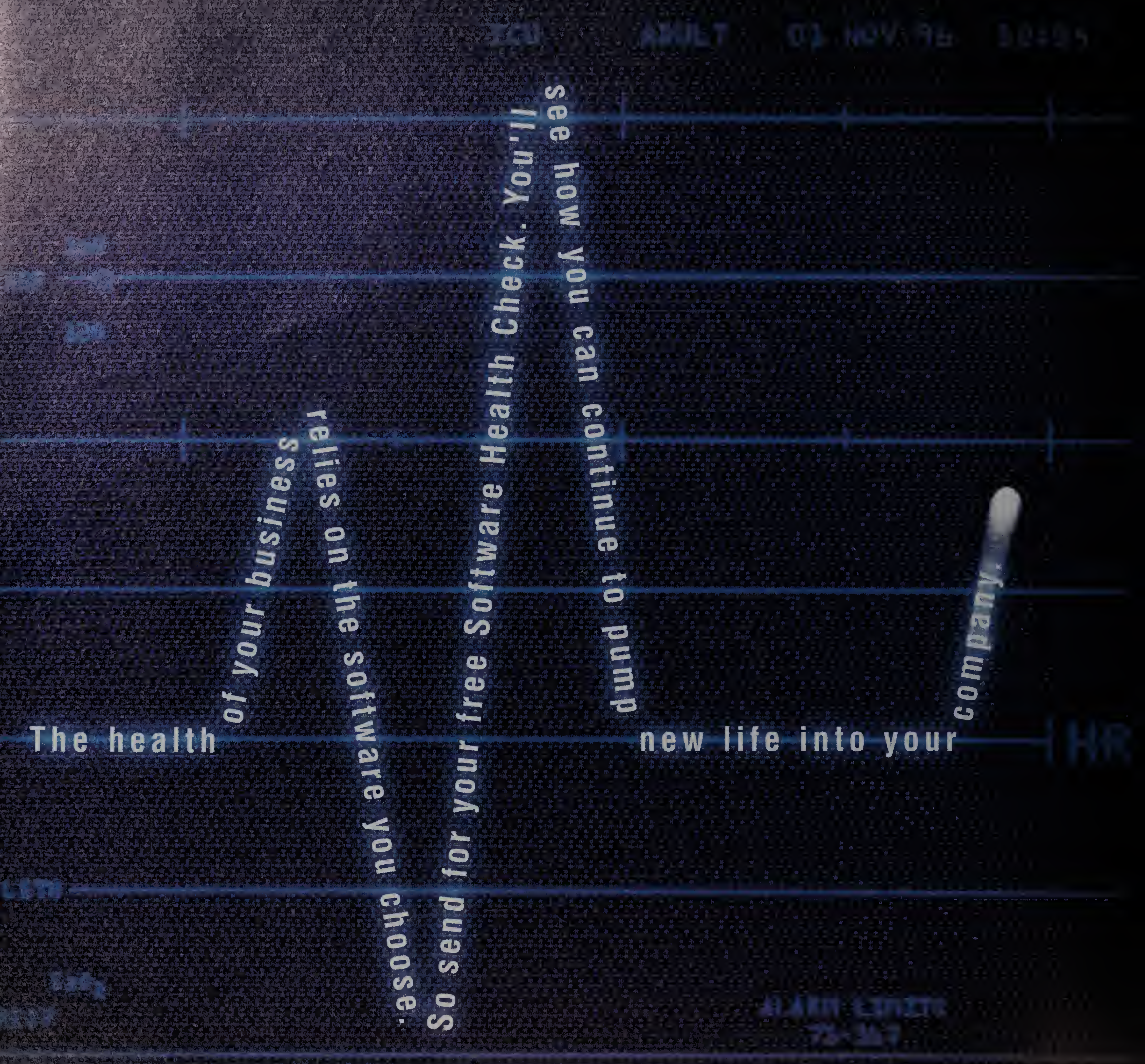
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VISUAL CAFE GETS RAD

Latest Symantec tool promises Mac users Java programming without the programming. Page 23.

TAKE A GAMBLE ON 'NET BUZZ

Our weekly column has the lowdown on Internet IPOs. Page 46.

E-MAIL UPSTART

Software.com's new chief technical officer, Paul Mockapetris, speaks out about the company's challenges. Page 19.

NetworkWorldContents

January 13, 1997 Volume 14, Number 2

News

6 **Bay urges** 28000 switch customers to sit tight; software upgrade makes 28000s compatible with NetICs technology.

6 **Start-up Digital Island** to guarantee Internet and intranet services.

8 **Precept's Judy Estrin** talks up IP multicasting on eve of industry event.

8 **Apple lays out** operating system direction; Microsoft and others come to Apple's side.

8 **Banyan injects** StreetTalk with LDAP.

10 **Vinca delivers** many-to-one failover software for Novell servers.

WANs & Internetworking

13 **VITALNet Labs puts** PNNI through its paces.

13 **3DV Technology releases** new version of RouterPM tool for hourly network performance reporting.

Carrier Services

15 **Netcom expands** Internet access portfolio through partnerships with AimQuest, Prime Cable and RadioMail.

15 **DSL vendors shape up** their offerings; new products address element management and security issues.

16 **Red Roof Inns'** successful migration to a higher capacity network makes business sense.

16 **FORE makes** wide-area ATM vendor Cadia Networks its seventh acquisition.

16 **Daniel Briere and Christine Heckart:** Exercise, eat right and begin planning for the future.

Local Networks

17 **Robert Frankenberg resurfaces** five months after stepping down as Novell's CEO.

17 **Intel's** first 10/100 Ethernet switch is priced to sell.

18 **Dave Kearns:** Going beyond bulletin boards.

Client/Server Applications

19 **Discovery Suite** from FileNet's Saros business unit combines document management, workflow and imaging.

20 **Marc Myers:** Web sites: Should you build or buy?

22 **Special Focus:** Don't look, there's probably an ORB in your Web application.

OMG's Stone says object technology makes the Web a better place for business. Page 22.

Intranets & the 'Net

23 **Microtest pitches** its WebEtc software for cost-effective 'Net connections.

24 **Scott Bradner:** Was Bob a year too early?

Technology Update

25 **Network PCs are sharing** the cache to cut down on net traffic and server loads.

Management Strategies

38 **Time may be all you need** to invest to get the payback you want from industry groups.

38 **Management Data Online:** Online resources for enriching your career.

Opinions

26 **Editorial:** It's not a black-and-white situation.

26 **Brian Moir:** Breaking down Bell barriers to local competition.

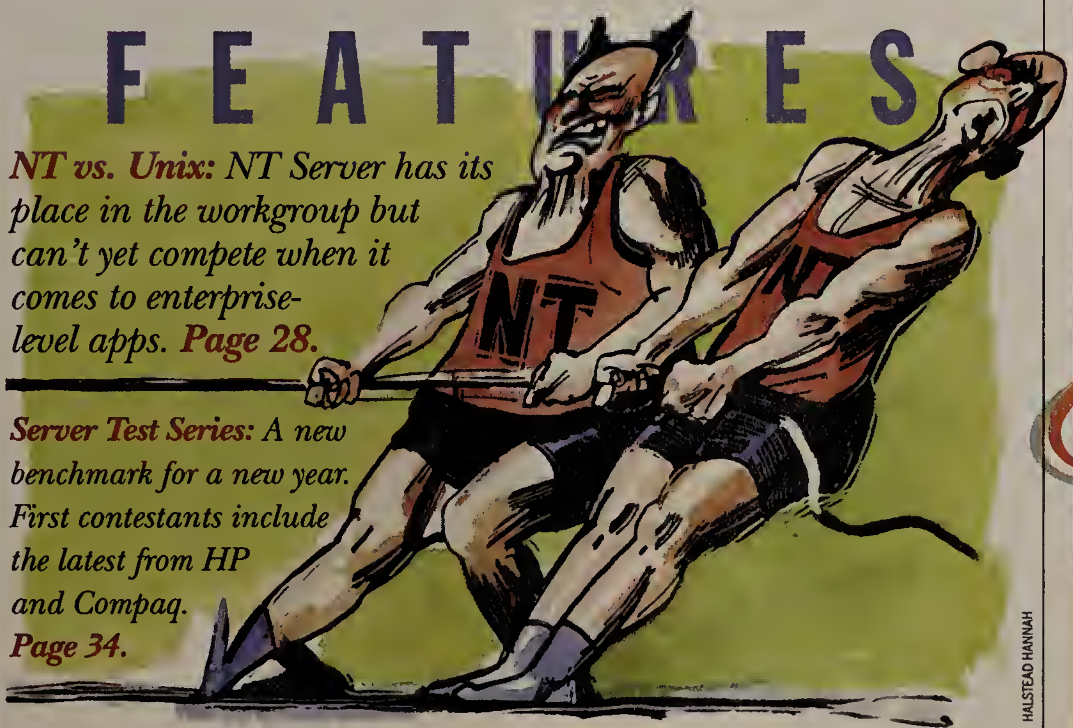
27 **Anura Gurugé:** Browsers bring a shift in SNA strategy.

46 **Mark Gibbs:** Questions for those with too much time on their hands.

46 **'Net Buzz:** Everyone's getting in on the IPO craze; new Wayfarer CEO hopes Magnets will stick; phone home with Navitel's TouchPhone.

Network Help Desk. *Page 25.*
Message queue. *Page 26.*
Editorial and advertiser indexes. *Page 43.*

FEATURES



NT vs. Unix: NT Server has its place in the workgroup but can't yet compete when it comes to enterprise-level apps. Page 28.

Server Test Series: A new benchmark for a new year. First contestants include the latest from HP and Compaq. Page 34.

HALSTEAD HANNAH

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To quickly get to any online info referenced in *Network World,* type its DocFinder number in the input box on the home page.

This Week

Only on Fusion

- Encryption vendors Cylink and RSA Data Security last week settled their long-running legal battle over public-key encryption. See what their agreement means and read a primer on the technology. **DocFinder: 0254**
- Responding to complaints, Yahoo recently dropped a feature that lets users look up the names and addresses associated with specific phone numbers. **DocFinder: 0255**

News+

- **Agents.** Get an early taste of IBM's agent technology (page 1). Download a copy of IBM's Web Browser Intelligence software for Netscape Navigator and Microsoft Internet Explorer. Browse through a library of papers, primers and FAQs related to software agents. **DocFinder: 0250**
- **Electronic Commerce.** After you've read our story about Novell's delayed electronic-commerce module for IntranetWare, see what Open Market, Netscape and Microsoft are already selling in that arena. **DocFinder: 0252**
- **The Internet.** Download the transcript of our interview with DNS builder Paul Mockapetris (page 19), and read the documents that first laid out the DNS concept. **DocFinder: 0203**

NetRef

- Download complete test results (in Excel spreadsheets) for the servers reviewed on page 34. **DocFinder: 1028**

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News briefs, January 13, 1997

Collabra Server 3.0 hits beta

Netscape Communications Corp. claims to have delivered more than one million servers in 1996. Now, less than two weeks into the new year, the company is continuing its steady stream of server software offerings by releasing the long-awaited beta of its Collabra Server and shipping the final version of its Proxy Server 2.5. New features in Collabra Server 3.0 include support for the Lightweight Directory Access Protocol and tools for users to create custom views of discussion threads and control access to discussion groups. The beta, available on Sun Solaris and Windows NT, is not feature-complete. Still to come in the next beta, due out in six weeks, is X.509 certificate support for encrypted communications. The final version is scheduled to ship in the first quarter.

Microsoft clarifies Java stand

Last month, when the company was being accused of co-opting the Java programming language, Microsoft Corp. did little to stem the charges when it declined to announce support for some key technical specifications or the "100% Pure Java Initiative" being pushed by more than 100 vendors. Last week, the Redmond, Wash., software giant finally took a stand on one of those issues, pledging to support the Java Developers Kit (JDK) 1.1., which contains the fundamental reference specifications for writing and running applications. It's too early to tell when Microsoft will begin supporting JDK 1.1 in its products, said Charles Fitzgerald, Microsoft product manager.

Corel corrals Java

Corel Corp. today will make the public pre-beta version of its Office for Java software available for download from its Web site. Last fall, the company made a preview version of the software available for testing, but it could not be downloaded.

Proteon's remote possibilities

Capone

Proteon, Inc. has created a subsidiary to focus on remote access product development and marketing. About 80% of Proteon's 180 employees will move to the subsidiary, which is called OpenRoute Networks, Inc. The rest will remain with Proteon, which will continue to pump out LAN adapters, hubs and switches. Proteon President and Chief Executive Officer Dan Capone will head both companies.

Video vendors unite

VTEL Corp. and Compression Labs, Inc. (CLI) last week announced they will merge, creating one of the biggest videoconferencing vendors in the market. The company, still to be called VTEL, will have annual revenue of about $200 million. VTEL manufactures the Smart Videoconferencing product line. CLI's core technology is compressed digital video, the basis of its line of video communications products.

PSINet chooses Ascend

PSINet, Inc. last week said it has started installing Ascend Communications, Inc. gigarouters in its network to help handle the flood of new customers that want access to the Internet, pushing current Internet service provider networks to the limit. The GRF 400 Internet Protocol Switch will be added to PSINet points of presence as traffic warrants, PSINet said. The GRF 400s will be used for routing or switching, as needed. The additions are intended to stave off degradation of service, PSINet said.

Going to VXtreme

Cisco Systems, Inc., Informix Software, Inc. and SoftBank Ventures, Inc. have each purchased a minority stake in VXtreme, Inc., a maker of video coders/decoders for the Internet. The total investment was $10 million. Also, Cisco and VXtreme said they plan to foster interoperability between VXtreme's video technology and Cisco's Internetwork Operating System.

Bay tells 28000 users to hang tight

Acquisition of NetICs kills FastFrame design, but no trade-in program is offered.

By Jim Duffy

Santa Clara, Calif.

Bay Networks, Inc.'s advice to its 28000 switch customers: Hold tight for now.

Despite a Bay executive's admission that a recently acquired switching technology will cannibalize the 28000 line, the company is not instituting a formal upgrade program for users.

Instead, Bay this month will ship a 28000 software upgrade that will let switches developed by start-up NetICs, Inc interoperate with the 28000s. Bay acquired NetICs last month. Bay acknowledged, though, that future generations of its 10M/100M bit/sec Ethernet switches will be based on the NetICs Application Specific Integrated Circuit design, not on the 28000's FastFrame architecture of which Bay has shipped in excess of 250,000 ports.

"There's no compelling reason to change them out," said Gary Thomas, Bay product marketing manager. "Particularly since a lot of the 28000s we've sold have been in the backbone."

The 16-port, fixed configuration NetICs switches are best deployed in desktop and workgroup configurations, Thomas said. They cost less than $250 per port, whereas the top-of-the-line 28115 costs between $600 and $700 per port.

"Customers don't want to get the backhoe out, they want to get more function out of what they got," Thomas added.

With that in mind, Bay is releasing Version 2.0 of its BayStack software for its 28000 and 58000 switches, which includes support for the following:

- 802.1D Spanning Tree Protocol, which enables the switches to seek out faster routes and manage the network topology.
- Conversation steering, which lets users designate any switch port for monitoring traffic.
- In-band telnet sessions, for configuring the switches.
- Per-port Remote Monitoring (RMON), for collecting alarm and event information from each switch port.
- One-way link detection and elimination, for disabling links with which the switch can transmit or receive, but not perform both.
- Ethernet switch diagnostics, which enable users to view diagnostic logs, system status, and port statistics and status.
- Support for FDDI modules on the BayStack 28200 and 58000, and a 200M bit/sec expansion port and RMON-based Data Collection Module for the 28200.

Despite these and other enhancements to come, it will be imperative for Bay to offer a trade-in program for 28000 users as the company develops next-generation 10/100 backbone switches on the NetICs design, said Esmerelda Silva, an analyst at International Data Corp.

"That's when the obsolescence of the [FastFrame-based] 28000 is assured," Silva said.

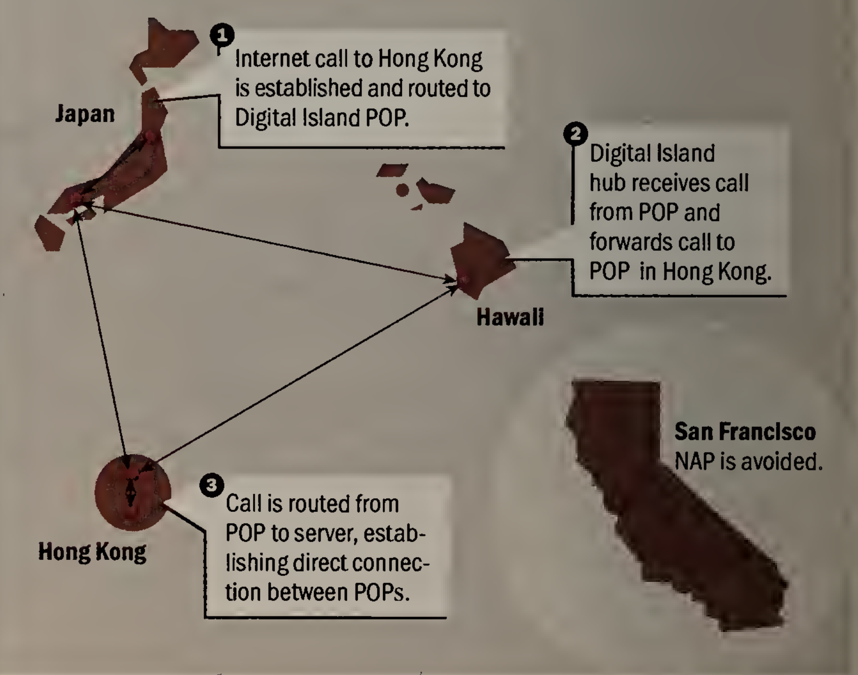
"At some point, we're going to have to look at whether we replace, whether we upgrade or just what," said 28000 user Brad Dilkes, technical specialist at Bayer Rubber in Sarnia, Ontario.

Bay has not disclosed a timeframe for migrating NetICs technology into the backbone. But the company expects NetICs-based switches to start to eat into sales of the 28000 in two to four quarters, said Dick Eyestone, senior vice president of Bay's Enterprise Business Unit.

Bay plans to ship its first NetICs-based switch later this quarter. ■

SKIPPING AROUND INTERNET NAPS

Digital Island's service reduces the number of hops an Internet call has to go through by cutting out the call's hop to a network access point (NAP).


Japan
❶ Internet call to Hong Kong is established and routed to Digital Island POP.
❷ Digital Island hub receives call from POP and forwards call to POP in Hong Kong.
Hawaii
San Francisco NAP is avoided.
Hong Kong
❸ Call is routed from POP to server, establishing direct connection between POPs.

Start-up Digital Island to offer guaranteed Internet services

By Denise Pappalardo

Honolulu

Start-up Digital Island, Inc. next week is expected to introduce a set of Internet/intranet services that guarantee customers speedy and reliable access by circumventing congested network access points.

The company's portfolio of business services will consist of Web hosting, Internet access and multinational intranet offerings, all backed by performance and availability guarantees.

Digital Island, which declined to comment on the upcoming announcements, next week will release the name of its services and divulge pricing information.

The services will be based on a cache-like technology that can store Web information on a central server. This will enable Digital Island to have more control over how fast customers can access information compared to traditional access methods, said a source close to the company.

The company will rely on a main hub here anchored by Cisco Systems, Inc. 7000 routers and Sun Microsystems, Inc. servers. This hub will be connected to points of presence in other states and countries via T-1 or T-3 lines that Digital Island is leasing from WorldCom, Inc. The dedicated connections initially will reach into Brazil, France, Hong Kong, Japan, Korea and the U.S.

See **Island**, *page 10*

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Making a pitch for IP multicasting

This week's IP Multicast Summit in Santa Clara, Calif., is designed to spread the word about IP multicasting, a technology that promises to become a hot topic in network circles this year.

IP multicasting is designed to make more efficient use of bandwidth on corporate networks as well as the Internet by allowing packets to be sent simultaneously to multiple IP addresses, rather than according to TCP/IP's unicast model.

JUDY ESTRIN

President and CEO of Precept Software; organizer of IP Multicast Initiative

Co-founder of Network Computing Devices, 1988; co-founder of Bridge Communications, 1981

Judy Estrin, president of IP multicasting vendor Precept Software, Inc. and organizer of the IP Multicast Initiative (IPMI) consortium (which is running the summit), spoke with *Network World* Senior Writer Chris Nerney about the consortium's goals and IP multicasting's promise.

What does the IPMI have to do to accomplish its goals?

Lots of little things. Without the [IPMI], multicast will still get deployed and become a reality, but it's a question of how long it will take. So the purpose of IPMI is to work at any angle it can to shorten that deployment cycle through education and marketing, and kind of pushing where it can.

The biggest task is just communication and interaction with the ISPs to see if we can drive the urgency for multicast deployment in the Internet.

Why is that the biggest task?

It's the broadest of scope. When you're educating an enterprise, it's one organization. When you're talking about the Internet, there is not an 'Internet.' It's a collection of all these ISPs. Each one has its own business model, and each one naturally wants to be better than the next.

Which multicast applications will really take off?

Clearly, video in the enterprise or video over the Internet will be a big factor in pushing multicast. Real-time audio and video generates a lot of bandwidth. If you really want to get to lots of people, multicasting is the right way to do it.

Is IP multicasting a useful business tool yet?

It is a useful tool now. Is it deployed everywhere? No. But is the technology there? Yes.

What steps do network managers need to take to support IP multicasting at their companies?

If you're running routers, you do need to enable multicast on those routers. And there are differences in how you manage your network and address allocation and scheduling.

One of the things that the IPMI will focus on will be to provide information to network managers and a resource for network managers to understand where to get that information and how to learn this more quickly.

Is it true that the majority of Internet applications do not lend themselves to multicast traffic?

That's an easy thing to say. But here's the problem. If you're driving on the L.A. freeway system, you could say, 'I don't like carpool lanes. They're too inconvenient because I have to get over to the off-ramp when it's time to exit.' And that may be true. But if you go use a carpool lane and you have two people, you're going to get to your destination a lot faster. You just have to think through and plan accordingly.

Not everything can go multicast. But if you look at an application, you can look at what can be multicast-enabled and what cannot. ■

IP MULTICAST INITIATIVE

Mission: To speed the adoption of standards for IP multicasting technology.

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Intel
Microsoft
Netscape
Precept Software
Silicon Graphics
StarBurst
Sun
Vivo Software
White Pine
Xerox PARC

Apple drums up support for new OS direction

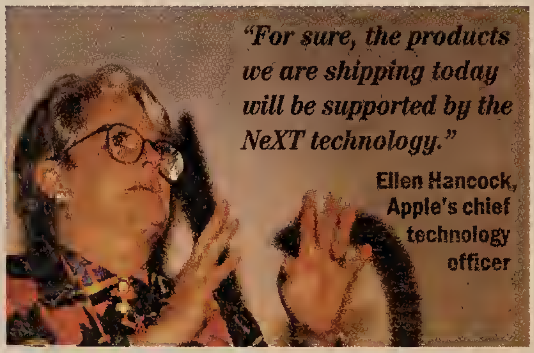
By John Robinson
San Francisco

At MacWorld Expo last week, Apple Computer, Inc. forged ahead with plans to reinvent itself with a new operating system, despite speculation on Wall Street that the company may not be able to pull itself out of a downward financial spiral.

Ellen Hancock, Apple's chief technology officer, outlined the basics of a plan to implement the new MacOS, code-named Rhapsody and based on technology acquired from NeXT Software, Inc. The operating system is expected to run on more hardware platforms than the current MacOS and provide better support for Internet applications.

Apple will deliver a version to application developers in the third quarter, but Hancock said users will not see an implementation until early next year. That version will run some System 7-compatible applications; however, she said a fully Macintosh-compatible release will not be available until at least mid-1998. In the meantime, Apple plans to continue issuing semi-annual updates to System 7.

Several companies here last week rallied around Apple and the new operating system, with Microsoft Corp. leading the way. Microsoft announced availability of Internet Explorer 3.0 for the Macintosh and a beta version of Front Page 1.0, its Web publishing software. Microsoft also unveiled the creation of a unit to develop a version of Microsoft Office for Apple's new operating system.


"For sure, the products we are shipping today will be supported by the NeXT technology."

Ellen Hancock, Apple's chief technology officer

Internet Explorer 3.0 for the Macintosh will support HTML 3.2 extensions, and Java and ActiveX controls written for the Macintosh platform.

In addition, Microsoft will bundle a Macintosh version of its Personal Web Server software, administration kit, and Internet news and mail client with the new browser.

Other MacWorld highlights included:

- An announcement by Apple Chairman and Chief Executive Officer Gilbert Amelio that Apple will bundle Marimba, Inc.'s Castanet Tuner with its new MacOS Runtime for Java, an implementation of Sun Microsystems, Inc.'s Java virtual machine.
- A pledge by Netscape Communications Corp. to make its Netscape Communicator software available for Rhapsody when released. The suite of client software includes Netscape Composer for creating HTML documents, Netscape Messenger, and more.

IDG News Service contributed to this report.

Banyan's StreetTalk ready to gain LDAP support

By Christine Burns
Westborough, Mass.

Banyan Systems, Inc. officials last week outlined plans to infuse the company's StreetTalk products with support for the Lightweight Directory Access Protocol (LDAP) — a move that will allow a wealth of new applications to work with the directory services.

The company will first deliver LDAP 2.0 support in a revision of its Universal StreetTalk directory, which will enter beta this month, according to Eugene Lee, vice president of marketing.

Banyan's *Lee says the company will deliver LDAP 2.0 support for StreetTalk on all platforms by mid-year.*

LDAP support for Banyan's native VINES operating system and its StreetTalk for Windows NT will ship by the end of the second quarter.

Developed at the University of Michigan, LDAP is becoming widely accepted as a standard means for application and client software such as browsers and front-end E-mail packages to access information stored in disparate directory services.

One of the biggest knocks against VINES has been the lack of third-party applications that use the proprietary VINES API to access StreetTalk, Lee said.

"LDAP has taken that issue entirely off the table. Everything will talk LDAP on the wire in terms of accessing ours and other directory services," Lee said. "This means that hundreds of new applications will suddenly be available to help our customers take better advantage of their existing VINES or StreetTalk for NT infrastructure."

Lee said all of Banyan's client software — such as BeyondMail and a future product called StreetTalk Desktop, which lets users easily share files across the network using the directory — will pick up LDAP support this year, as well.

"LDAP support is something that Banyan has to deliver so they aren't totally ruled out of the game," said Shilpa Agarwal, senior research analyst with Cambridge, Mass.-based Giga Information Group.

However, she added, this support is likely only to help Banyan retain its current users and not entice new ones to either VINES or StreetTalk for NT because most other major directory vendors are also planning LDAP support.

Banyan will not be the first to deliver LDAP support, as Netscape Communications Corp. already has Unix and Windows NT-based LDAP servers on the market.

Also, Novell, Inc. last month shipped its LDAP Services for NDS, which publishes data stored in Novell Directory Services to LDAP-enabled clients.

Microsoft Corp. is not expected to deliver its own LDAP enabled directory until it ships Windows NT Server 5.0 early in 1998.

©Banyan: (508) 898-1000.

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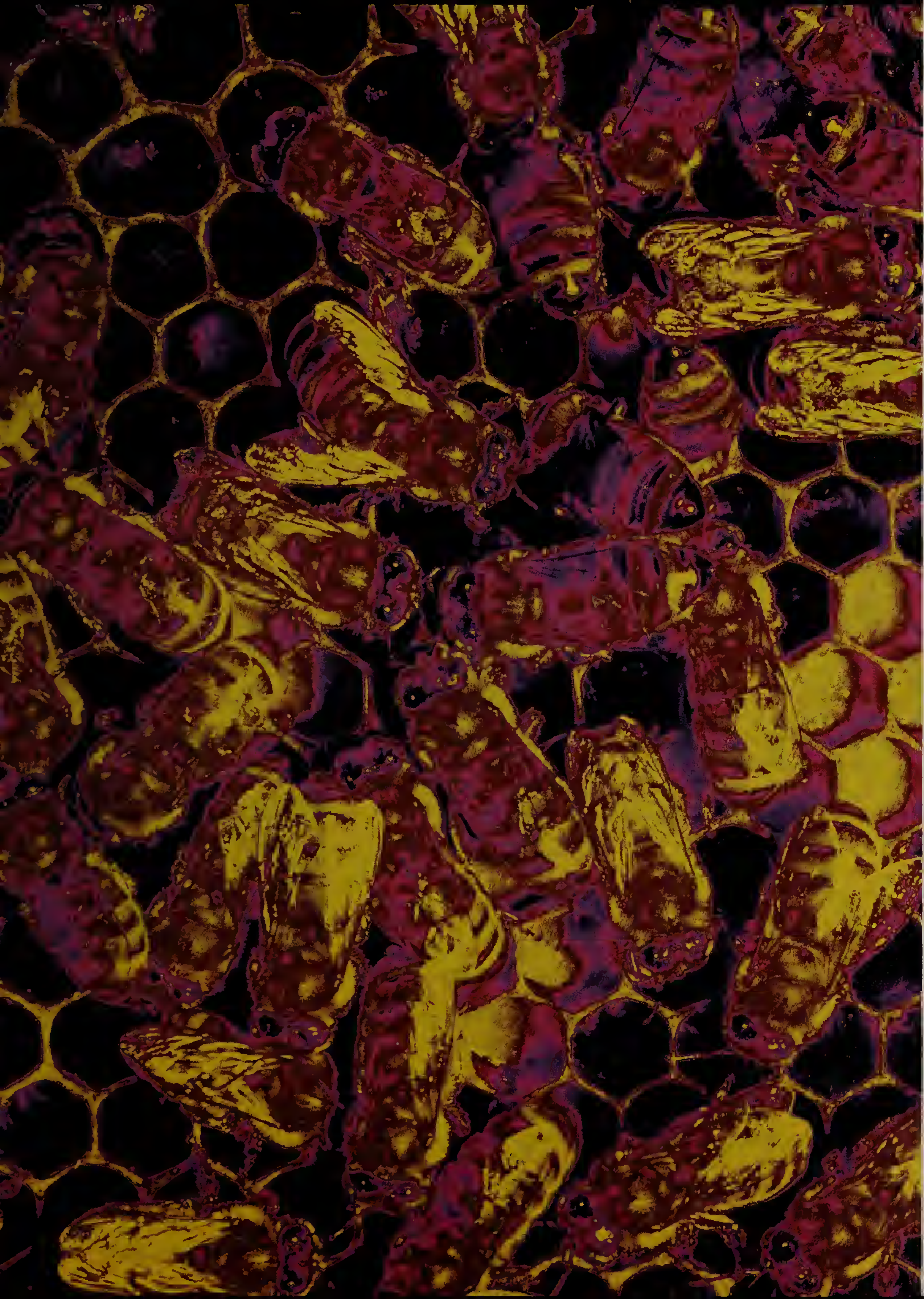

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help

Vinca bulletproofs NetWare

By Christine Burns

Orem, Utah

Vinca Corp. this week will announce a new version of its failover software that reduces the cost of bulletproofing Novell, Inc. networks.

Vinca's StandbyServer Many-to-One (MTO) software lets administrators outfit a single machine as a standby server for multiple NetWare 3.X and 4.X servers.

In the event that one of the NetWare servers fails, the Vinca server picks up the operations of the downed server.

Previous versions of the product required one backup machine for each NetWare server, a more costly protection proposition.

"We have both budget constraints and servers that we can't afford to go down, and this addresses both issues," said Paul Cook, a systems specialist with Utah State University. Cook beta-tested StandbyServer MTO to ensure continuous operation of the university's mail servers.

StandbyServer MTO software works by mirroring the operations of the protected servers, which are linked to the backup box over a dedicated channel or existing IPX network.

If a primary server fails, a standby machine takes over its operations transparently to end users. While the standby server continues to mirror the remaining primary units, it can only stand in for one machine at a time. An administrator must manually switch processing back to the online NetWare.

According to Brent McKinley, vice president of marketing for Vinca, a single StandbyServer MTO can support as many as 20 primary servers, depending on the types of applications running. A more likely number is four servers to each backup server where mission-critical applications are involved.

Michael Peterson, president of Strategic Research Corp. in Santa Barbara, Calif., said this product also can help users manage storage of distributed data.

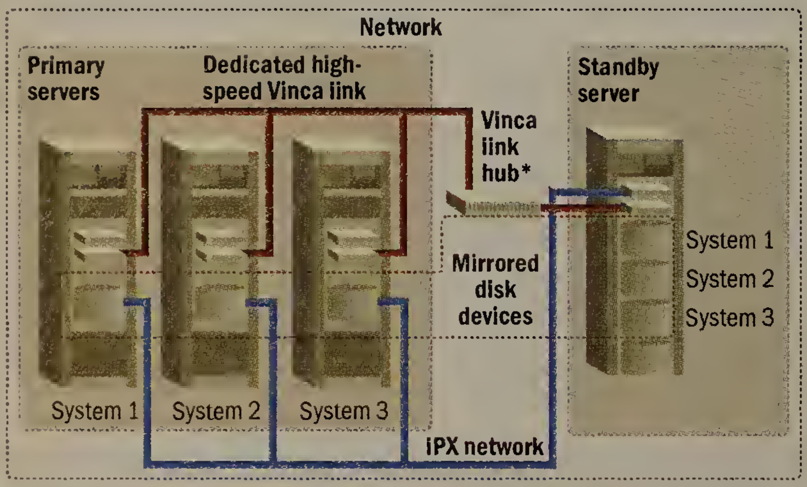
"Administrators only have to tap into the standby server to back up data contained on distributed servers," he said.

StandbyServer MTO will be available at the end of the month for $6,999.

©Vinca: (800) 934-9530.

VINCA STANDS BY MANY NOVELL SERVERS

StandbyServer Many-to-One software lets a single server provide failover data protection services for multiple NetWare 3.X and 4.X servers. The software runs on primary and standby servers.



* The hub can be replaced with individual cards in the standby server.

Modems

Continued from page 1

at 33.6K bit/sec. One vendor admitted that with its 33.6K bit/sec modems, that top speed is achieved only 40% of the time once a connection is established.

In general, the faster the potential speed of modems, the less often they will connect at top speed.

One purpose of the trial is a reality check. The firms expect to use the feedback to fine-tune the new modems and adjust the speed expectations of potential users, sources said. The trial is open to users of Shiva central-site modem gear, including the company's LanRover Access Switch, which is in about 400 shops so far, sources said.

The real-world trial becomes more important because there is no standardized telephone network model yet for predicting 56K bit/sec modem performance. The Telecommunications Industry Association is still working on one.

The 56K bit/sec speed is approachable only in one direction — away from a site that is linked to the digital carrier network by a digital connection. Circuits are quieter in that direction because there is no analog-to-digital conversion to introduce quantization noise.

Because the modems rely on these quieter paths, they are more sensitive to other sources of noise that were considered secondary or insignificant with V.34 modems. But again, there is no model to say how much more.

The real-world trial becomes more important because there is no standardized telephone network model yet for predicting 56K bit/sec modem performance.

More power needed

U.S. Robotics, which plans to ship its first 56K bit/sec modems this month, is the first vendor to publicly acknowledge another problem that uniquely affects 56K bit/sec modems: a federal power limit that cuts the maximum potential of the technology down to the low 50K bit/sec range right off the bat.

And because of the modulation scheme used with the new modems, as the quality of the line degrades, that power limit has a disproportionately greater braking effect on the data rate.

Rockwell Semiconductor Systems, Inc., maker of the chips that support Shiva and Microcom modems, is still hoping to squeeze out a full 56K bit/sec under the current Federal Communications Commission power limit. But U.S. Robotics says it can do so only if they get more power.

Vendors are planning to seek a waiver of the FCC power rule, which was put in place to limit cross talk between cabled wire pairs in analog carrier systems. A waiver will likely require approval from carriers, whose networks the rule was designed to protect. ■

Island

Continued from page 6

With Cisco as its first customer, Digital Island is off to a strong start. A Cisco spokesman confirmed that the company signed a contract with Digital Island but would not elaborate on exactly which services the router giant will use.

Other users are intrigued by the new services.

"We would definitely be interested in looking at a service that will offer performance guarantees," said John Montgomery, director of technical services at Embarcadero Systems Corp., a San Francisco-based container shipping company. Embarcadero supports an intranet along the West Coast using dedicated T-1 links, Montgomery said. But the company is looking to expand its business in the Pacific Rim and is interested in reducing the cost of its domestic intranet, he added.

Digital Island's "major selling point is its single-server architecture that provides nonstop intercontinental IP and IPX data traffic," said Paul Johnson, an Internet analyst at Business Research Group in Newton, Mass. Although analysts agreed Digital Island's architecture will provide reduced latency, some are skeptical about how the service provider will be able to support service-level guarantees.

Digital Island's "major selling point is its single-server architecture that provides nonstop intercontinental IP and IPX traffic," says Internet analyst Paul Johnson.

"They are using WorldCom's lines and ISPs in some of the countries to support the service," Johnson said. "They will be better off when they are able to invest in building the infrastructure themselves."

©Digital Island: (808) 540-4000.

Shiva crafts frugal LanRover option

Shiva Corp. has an integrated, bandwidth-pinching software option for its LanRover access servers and switches, claiming it will reduce remote dial-up connect time.

Powerburst software is now available as an option for LanRover client software and ShivOS firmware for LanRovers, the company announced last week.

The tool is designed to accelerate E-mail, database and file management applications by caching files accessed by remote users. That can eliminate the need for a lengthy dial-up connection to download the same files again.

The software checks whether the file at the central site has been updated since the last contact and will not download it again unless it has changed. If the file has been updated, Powerburst will download only those blocks that have been altered.

The company claims Powerburst can boost performance 200%, but that is not always the case, according to beta testers. For example, Vinny Hennessey, departmental LAN administrator for the North Carolina Department of Agriculture, said results from users dialing in for Lotus Development Corp.'s cc:Mail fell below that level.

Shiva gear like this LanRover E/Plus can now be fitted with Powerburst caching software to reduce dial-up connect times.

However, he said the integrated product works much better than the previous stand-alone version of Powerburst used in conjunction with the former LanRover software. "Caches would get lost, but this seems stable," Hennessey said.

Powerburst was developed by Airsoft, Inc., which Shiva bought last year.

This integrated Powerburst release offers client support for Microsoft Corp.'s Windows 3.1 and 95, and support for IP and Network Control Protocol. A second release by mid-year will support TCP/IP for Windows NT access and LAN-2-LAN.

During the first quarter of this year, the company will include Powerburst for free with the ShivOS 4.5 operating system. After that, it will cost an additional $1,000 when bought with a two- to four-port LanRover, $2,000 with an eight-port and $5,000 with a LanRover Access Switch.

For more information, Shiva can be reached at (617) 270-8300.

— Tim Greene

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Novell

Continued from page 1

Joseph Marengi.

"I wish that I could give you a good technical reason why the product has slipped, but I can't. It has just slipped," said Stewart Nelson, vice president and general manager for Novell's Applications Division. Nelson did confirm that the company is reevaluating its plans.

Nelson contended that internal support for electronic commerce at Novell has not waned. Industry observers, however, argue that the delay and the downsizing of the Internet Commerce Division, which was rolled into Novell's Applications Division last November, raises doubts about Novell's commitment.

Still an Open Market?

Last March, Novell struck a partnership with Cambridge, Mass.-based Open Market, Inc., a leading provider of server software that enables secure credit card transactions over the World-Wide Web. The two companies announced they would integrate Open Market's OM-SecureLink transactional technology with Novell's Web server offering.

With this integration, Novell users would have been able to set up online storefronts that could accept customer's credit cards for payment. OM-SecureLink running on a NetWare Web server would encrypt transaction data and pass off transaction requests to a dedicated, secure server that could check credit, charge an account and relay an approved purchase order to a fulfillment house.

Nelson said Novell continues to work with Open Market, but he would not indicate whether the product — to be delivered later this quarter — will give IntranetWare users these same capabilities.

Analysts said this late delivery makes IntranetWare a less likely candidate for serving up electronic commerce. Instead, customers may look to existing products running on application server platforms such as Microsoft Corp.'s Merchant Server.

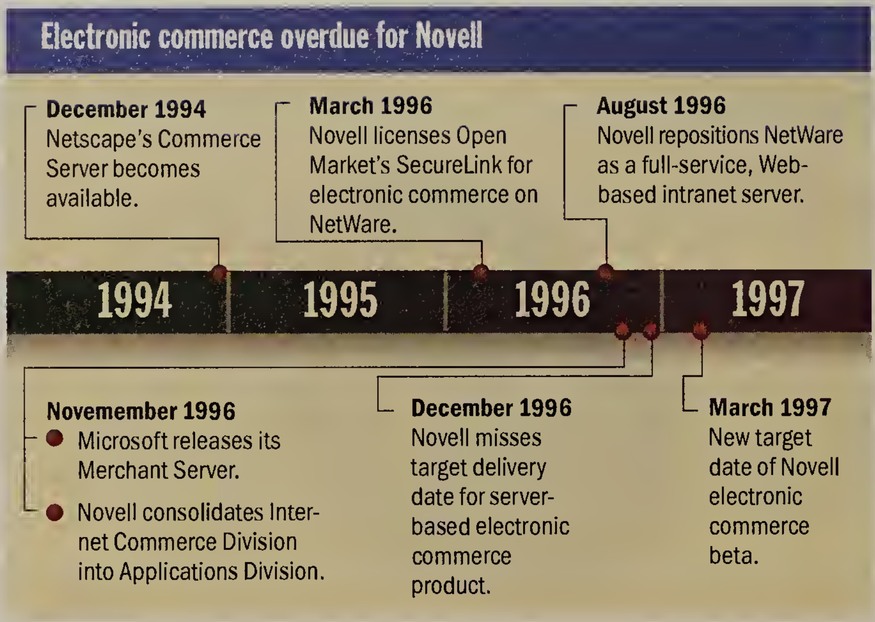
"Users don't look at IntranetWare as a mission-critical application server in the first place," said Rob Enderle, an analyst with Giga Information Group in Santa Clara, Calif. "What makes Novell think they're willing to run electronic commerce on top of it when there are many more tried-and-true options out there on other platforms?"

Dan Blevans, a technical analyst with Hallmark, Inc. in Kansas City, Mo., said despite its 60 NetWare 4.X servers, his firm plans to run all its Web services, including electronic commerce, on Unix-based systems.

"When we laid out technical plans for how we were going to use the Internet for business purposes early last year, NetWare wasn't ready to handle any of it, so we went with Unix," he said.

Other users are undaunted by the late delivery of Novell's electronic commerce product, as they are more concerned with getting their intranets in place.

"We don't have plans to use IntranetWare for commerce but not because I don't think it can't handle it," said Matt Maguire, MIS directory at Domino's Pizza, Inc. in Ann Arbor, Mich. "I want to see what it can do for us within the intranet and depending on that performance, we may use it to change how we sell pizzas over the Internet." ■


Electronic commerce overdue for Novell
December 1994
Netscape's Commerce Server becomes available.
March 1996
Novell licenses Open Market's SecureLink for electronic commerce on NetWare.
August 1996
Novell repositions NetWare as a full-service, Web-based intranet server.
1994
1995
1996
1997
Novemember 1996
Microsoft releases its Merchant Server.
Novell consolidates Internet Commerce Division into Applications Division.
December 1996
Novell misses target delivery date for server-based electronic commerce product.
March 1997
New target date of Novell electronic commerce beta.

Spammers

Continued from page 1

much (b) E-mail to three million people a questionable item with your E-mail address," the message said.

Wallace, who prefers the nickname "Spamford," said his company has sanctioned dozens of bulk E-mailers for using threats, forging E-mail or refusing to take users off its mailing lists.

"I think there is a line to draw," Wallace said. "We are not in business to intentionally annoy people. . . . Some people may get annoyed by our messages, but it is not intentional."

But Cybergen President Yuri Rutman accused Cyber Promotions of hypocrisy. Cyber Promotions frequently changes its domain names to get around filters set up by online services to block junk E-mail. And Concentric Network Corp., a California ISP, sued Cyber Promotions last year for creating havoc by launching spam from its network.

The skirmish is just the latest in an escalating battle over unwanted junk E-mail.

Angry 'Net users routinely dash off complaints to spammers and their ISPs, and some have even created blacklists. Some large ISPs have also tried to block bulk mailings and set up "abuse" E-mailboxes to handle complaints.

Meanwhile, spammers have fought back by deleting their outgoing E-mail address or forging someone else's. Cyber Promotions has even sued ISPs for blocking its E-mail.

"There is definitely a more aggressive response," said Mark Welch, a California probate attorney who fights junk E-mail in his spare time. In addition to receiving threats, he said a spammer forged a mailing with his E-mail address so he would get hit with flames.

But Cybergen's latest mailings have upped the ante.

The trouble apparently started after Cybergen started sending out bulk E-mailings touting a wondrous hair growth potion. The mailing annoyed so many users that Joe's CyberPost, a free Web hosting service, shut down Cybergen's page a few weeks ago.

Then, in retaliation, someone at Cybergen forged an even more inflammatory mailing titled "El Cheepo" and made to appear as though it were coming from Joe's domain. The message snidely told users who wanted to be removed by the mailing list: "Sorry, no can do."

Joe's domain (joes.com) and his ISP, Hurricane Electric, were quickly flooded with waves of mail bombs, ping attacks and SYN attacks, as well as angry E-mail and phone calls. Joes.com had to be shut down completely.

"We were getting attacked by so many users, it was ridiculous," said Mike Leber, Hurricane's owner. "The worst thing someone can do to you is spam in your name."

Leber said he has little recourse, however. The Federal Bureau of Investigation was not interested. And Leber doubted Cybergen had enough assets to justify a civil lawsuit. Joe Doll, the owner of joes.com, is still mulling over his options.

IBM was also hit with complaints because the spam originated from one of its public E-mail accounts. Welch and some others blame IBM for taking too long to disable the account. IBM could not be reached for comment.

Cybergen's Rutman said he fired the employees that were responsible for the forged mailing. But he said Internet users are going to have to get used to junk E-mail.

"I don't see what the problem is," he said. "Users can just delete it."

Rutman also claimed that few users mind the unsolicited mailings. Cybergen sent roughly three million hair tonic messages, but Rutman said his company received only 400 to 500 complaints before Cyber Promotions closed its account.

"It's a minority, and it's going to stay a minority, and every company will be doing this," Rutman said. And he encouraged users to call him at (847) 679-3916. "I'll have them over for cappuccino and pasta."

Rutman also added that he is looking for a new ISP. ■

CICS

Continued from page 1

comes, in effect, a potential CICS programmer.

- CICS server-based transaction-oriented applications become easier to create and change because they are based on flexible object-oriented technology.
- Due to IBM's support of other object technologies, companies will be able to build Microsoft Corp. ActiveX applications, as well as Java applets, that work seamlessly with CICS server objects via object request brokers (ORB).

"CICS today is very good as a transaction processor, but it's terrible with objects," said a user familiar with the project. "Object brokers are very good with objects but terrible with transactions. Java is the unifier that pulls them together."

IBM officials declined to disclose details of the project.

Last month, IBM released the first piece of its Java-enabled CICS strategy in form of the CICS Java Gateway. This Java program runs on a Web server and, basically, translates between requesting Java client applets and existing CICS servers. The gateway, typical of most efforts to date, treats Java as a client-based technology that requires a pathway to existing server resources.

By contrast, the newest IBM project promises to transform CICS servers into powerful Java object servers. By doing so, IBM hopes to speed customers' shift from host-based and traditional client-server computing to three-tier, distributed object systems. The latter are touted as being easier to build, change and maintain than conventional systems.

For example, put Java inside the CICS server, and turn CICS programming interfaces and services into Java-class libraries. CICS, in effect, will become a Java object server, using the InternetInter-ORB Protocol (IIOP) to communicate with Java applets running in browsers or, via the JavaBeans component architecture, with ActiveX components on Windows PCs.

Then you can write a Java application that automatically has all the ranks and privileges of a CICS server program. You can write a simple wrapper in Java to let that application work with legacy data and transactions. And you can make that same application visible to, and usable by, Windows desktop applications and Web browsers.

"You could imagine that if you develop a Java [server] that sits on CICS, and surface the CICS API in Java classes, you could make CICS much more accessible than with COBOL or C," said Charles Brett, who runs Middlewarespectra, a British consulting company here.

The CICS project is the most dramatic example of the strategic importance IBM has attached to Java. "We've redeployed our forces to focus on Java as an environment for computer solutions," said Simon Phipps, program manager for Java Technology, IBM U.K. Laboratories in Hursley Park, Hampshire. "Where it's practical, new [software] work will be done in

WANs & Internetworking

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Briefs

Software Artistry, Inc. (SA) *has unveiled a new version of its* **asset management** *software that is more comprehensive and better integrated with other support functions than previous releases. SA-Expert Foundation Manager 2.0 lets users access a central asset repository for "cradle-to-grave" asset management, SA said. It also includes tight integration with change management and help desk applications, and can work with leading asset tracking tools. The software is available now; pricing varies by configuration.*

SA: (317) 843-1663.

Compatible Systems Corp. *said it will add* **secure tunneling** *of IPX and AppleTalk protocols to its routers this quarter. The secure tunneling capability will be based on Compatible's Secure Tunnel Establishment Protocol. STEP allows Compatible routers to establish an authenticated virtual link. STEP will be a standard feature of Compatible MicroRouters and RISC Routers. Pricing for those products starts at $1,695.*

Compatible: (800) 356-0283.

Ascend Communications, Inc. *recently bought* **Stony-Brook Services, Inc.,** *a maker of software for managing devices on multivendor networks. The software will manage Ascend products and those of others, and can be used by carriers and Internet service providers to better manage their networks and monitor quality of service. The value of the* **stock-swap deal** *was about $29 million.*

Ascend: (510) 769-6001.

Ford Motor Co. *has agreed to* **outsource** *its advanced voice messaging system to* **Lucent Technologies, Inc.** *Ford signed up for the vendor's new Lucent Messaging Services offer, under which Lucent installs and manages its Intuity Audix multimedia system for the user company.*

ATM put to compatibility test

By Michael Cooney
Research Triangle Park, N.C.

Information systems professionals tend to frown upon incompatible technology.

With this in mind, a group of ATM vendors are working closely with VITALNet, a test bed run by MCNC, previously known as the Microelectronics Center of North Carolina.

Bass *says PNNI implementation problems are being resolved before they surface in user nets.*

The VITALNet (Virtual Interoperability Testing and Applications Lab) network is made up of a fiber-optic, OC-48-speed backbone. Users or vendors can test every aspect of ATM products from flow control, throughput and quality-of-service capabilities to network management applications in a real-world production ATM environment.

Upcoming events at MCNC's VITALNet Labs

February 28 - March 7
2nd Multi-Vendor PNNI Interface-to-face

Late April
2nd Multi-Vendor IP Switch-a-thon

One of ATM's core technologies, Private Network-to-Network Interface (PNNI), is being put through its paces by vendors trying to establish that elusive comfort level where users can be assured that no matter what equipment they populate their ATM nets with, the techonologies will be compatible.

PNNI interoperability is required for switch-to-switch compatibility so users can mix and match switches from multiple vendors. Multivendor ATM switched virtual circuit implementations also depend on the successful implementation of PNNI.

"Without multivendor compatibility, ATM will be slow in coming," said John Streck, director of VITALNet, which is running the tests. "Our first test showed that work still needs to be done, but also [showed] that these vendors can make their switches work together."

Cisco Systems, Inc., FORE Systems, Inc., IBM and Madge Networks, Inc. all participated in the first test held here last December.

Streck said he expects two to three times more vendors to participate in the next round of testing in February, though he declined to name the new participants.

According to John Bass, lead engineer at VITALNet Labs, signaling gave the vendors the greatest problems during the tests.

"It's the most complicated aspect of PNNI: getting the signaling synchronized and all of the different components of signaling on the same page," he said. "Ultimately, about 80% of the issues were surrounding signaling, and the rest [were centered on] routing."

Streck *says without interoperability testing, ATM development would be a slow process.*

Other vendors concurred. "Signaling is a key function of any ATM switch, and with ours, making it compatible with the other switches wasn't a problem," said Kishore Jotwani, IBM ATM campus brand manager.

The key issue that emerged from the tests was how the different switches handled ATM packet they did not recognize — whether they discarded those packets or compensated for them and passed them on. Some switches were sensitive to the ATM specifications, some weren't, Bass said.

Bass also said the routing issues were a matter of how vendors implemented the PNNI specification and usually required small code changes to correct.

Other tests at the lab included LAN Emulation (LANE) support and RFC 1577 conformance. RFC 1577 defines how TCP/IP runs in an ATM environment. "Functions such as LANE worked with minimal changes in this test," Streck said. "We intend to make these tests more strenuous in the next round."

©MCNC: (919) 248-1196.

Tool gives hourly router reports

RouterPM 3.0 designed for proactive troubleshooting.

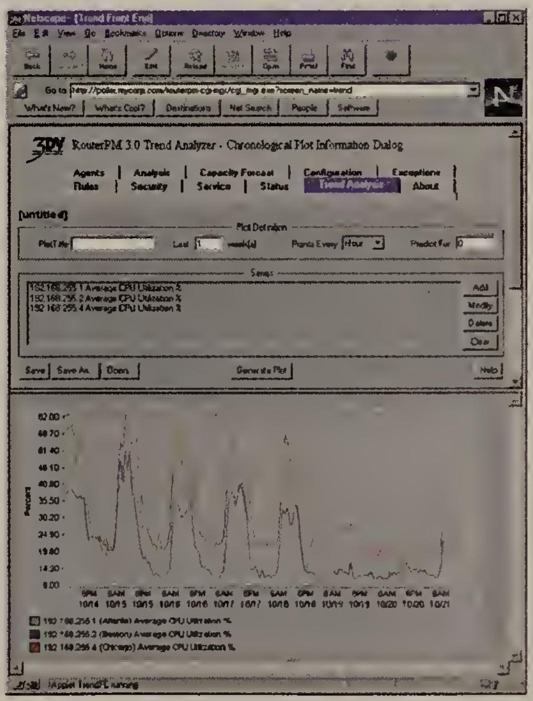
By Jim Duffy
Nashua, N.H.

3DV Technology, Inc. has unveiled a new version of its router diagnostics software that generates hourly performance reports.

Managers usually receive network performance analysis reports every 24 hours from their diagnostic tools, 3DV said. By generating these reports every hour, network managers can be more proactive in avoiding network faults that can lead to downtime, the company said.

"We're using it more for helping us in troubleshooting problems that are occurring right now [instead of] long-term trending," said Tom Petroskey, staff system analyst at Inland Steel Co. in East Chicago, Ind. "Being able to look at this stuff up to the last hour is going to be a big help for us, especially with some of these more near-term problems that we're seeing in the network."

"It lets people diagnose trends and see if there are certain times when there are congestion problems or slower response times so they can proactively reconfigure their network," said Lynne Jackson, senior analyst at Datapro Information Services in Delran, N.J.



3DV's RouterPM 3.0 *allows users to view performance trend data via the Web.*

Version 3.0 of 3DV's RouterPM application runs on Intel Corp.'s Pentium-based Windows NT 4.0 systems. It uses standard SNMP agents and Cisco Systems, Inc. proprietary Management Information Bases to continuously monitor and collect data from Cisco routers.

RouterPM 3.0 then checks performance data against user-defined thresholds and uses a rules-based inference engine to identify abnormalities within the network. It then generates Web-based reports and graphs, and recommends remedial action based on data from the inference engine.

Reporting of standard and user-defined performance trend graphs is accomplished by a Java applet that processes network managers' requests from point-and-click Web browser templates. RouterPM 3.0 also features more detailed diagnostics of Cisco router internal operations than previous versions of the product plus media-specific diagnostics for each LAN port.

These enhancements reduce the need for Remote Monitoring probes on every LAN segment, 3DV said. Available now, RouterPM 3.0 is priced from $100 to $1,000 per router, depending on quantity.

©3DV: (603) 595-2200.

Some people find editorial comment more credible than advertising copy.

Cool.

PC World said, "The (IBM) Network Printer 12's $1250* street price is the lowest on the monochrome chart, and its two-pages-per-minute graphics speed is one of the fastest." (January 1997)

Computer Shopper said, "IBM has come up with a winning combination for medium-size networks... that need reliable, fast printing.... Installation of the Network Printer 17 on our Ethernet network was one of the quickest and easiest we've ever performed." (December 1996)

PC Magazine said, "The IBM Network Color Printer will satisfy the needs of both business users who need simple color output for reports and presentations and desktop publishers who want nearly photographic-quality output." (October 1996)

IBM Printing Systems Company says, "Call us now at 1 800 358-6661, choose the 'Printer Selection Center' option, and find out more about the network printers lots of people are talking about." If you'd like to read the reviews mentioned here, visit us at www.can.ibm.com/ibmprinters

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*As quoted in *PC World*. Actual prices may vary from dealer to dealer, and depending on offerings, options.

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WANs & Internetworking

Carrier Services

Covering: Local and Long-Distance Services • Value-Added Networks • Cable, Satellite and Wireless Networks • Regulatory Affairs • Carrier-Based Internet Services

Briefs

■ *Web surfers in Seattle are getting a new flavor of Internet access.* **AirTouch Cellular,** *a subsidiary of AirTouch Communications, Inc. and* **Metricom, Inc.** *last week announced a four-month* **wireless Internet access** *trial using Metricom's Ricochet wireless modems.*

AirTouch: (800) 328-2178.

■ *Long-distance carrier LCI International, Inc. has hired former U.S. Assistant Attorney General* **Anne Bingaman** *to head up its push into the local exchange market. Bingaman is best known for brokering a landmark 1995 deal to allow Ameritech Corp. to offer long-distance service in Chicago and Grand Rapids, Mich. As head of the* **Department of Justice's antitrust division,** *Bingaman also pursued restrictions on Microsoft Corp.'s dominance of the PC operating systems market.*

■ *At almost the same time as Bingaman's LCI appointment,* **Ameritech** *headed back to the Justice Department and the Federal Communications Commission to apply for authority to* **originate long distance** *throughout Michigan. Ameritech's application is the first by a regional Bell operating company for an in-region, statewide long-distance authorization under the Telecommunications Act of 1996.*

■ *Wireless ATM start-up* **Netro Corp.** *last week announced its AirMAN (metropolitan-area network) line of products. Netro's* **wireless system** *will let network managers link multiple sites using a standard frame relay or ATM switch at both locations.*

Instead of connecting the switches using a fiber-optic line, users can send traffic via a wireless channel. A domestic version of AirMAN is slated for availability in the third quarter for approximately $15,000.

Netro: (408) 654-7500.

NetCom broadens 'Net access options

By Denise Pappalardo
San Jose, Calif.

Netcom On-Line Communication Services, Inc. is expanding its Internet access portfolio with a little help from its friends.

With a handful of new partnerships, the Internet service provider plans to develop international, wireless and cable modem Internet access services, all to keep an increasingly mobile workforce connected to the Internet.

To keep those on the road in touch, Netcom partnered with AimQuest Corp. for international roaming services, RadioMail Corp. for wireless access services and Prime Cable Co. in Austin, Texas, to test the viability of cable modem services.

AimQuest of Milpitas, Calif., operates the Global Reach Internet Connection (GRIC) network, which comprises 40 ISPs around the world. When Netcom users are traveling outside the company's service area, they can dial in to the local GRIC ISP's network instead of making an international or long-distance call.

"Customers have been asking for global roaming solutions," said Brian MacDonald, managing director of worldwide development at Netcom.

This service could be significant from a cost and availability standpoint, said Traver Kennedy, director of WAN research worldwide at Aberdeen Group, Inc., a Boston-based consultancy. International long-distance calls can cost anywhere from $10 to $40 per hour, making international Internet access too costly for domestic users, said Christophe Culine, vice president of sales and marketing at AimQuest.

While Netcom is not releasing pricing until the end of the first quarter, when the service is slated for availability, AimQuest partners have agreed to support per-hour prices between $4 and $6, Culine said.

Tune in to RadioMail

In addition to low-rate international access services, Netcom inked a joint development deal with RadioMail of San Mateo, Calif., that will let laptop PC and personal digital assistant users access the Internet using a wireless modem.

Trials are slated to begin this month, with service rollout slated for the end of the quarter. Netcom did not release pricing, but Eric van Miltenburg, director of business development at the ISP, said users will be charged for the number of characters they download, making the service best suited for text-only transmissions.

While Netcom's deals with AimQuest and RadioMail will develop into commercial services by the end of this quarter, its partnership with cable service company Prime Cable is more experimental. Fifty business and residential users in Las Vegas are testing cable modem access to the Internet. Cable modem access will offer users up to 3M bit/sec downstream transmission speeds, but at a premium price, van Miltenburg said. ■

Choose your access weapon

Keeping with its business focus initiative, Netcom is teaming with a number of vendors on a variety of technologies to offer users Internet access from almost anywhere.

Partner	Arrangement with Netcom
AimQuest	Will let its users connect to Netcom's network from around the world using a local telephone number.
Prime Cable	Testing cable modem technology as a viable alternative for Internet access.
RadioMail	Collaborating to offer wireless Internet access for personal digital assistant and laptop PC users.

See how other ISPs have developed international roaming services.

0206

Enter the number above in the DocFinder box on the home page.

Network World Fusion

http://www.nwfusion.com

High-speed DSL forces ATM issue

Fast remote access systems nearing completion.

By Tim Greene

Users may be forced into the realm of ATM if they want to get high-speed Digital Subscriber Line (DSL) service, based on the hardware being designed to support such services.

Announcements from three vendors this month will outline ATM-based DSL systems that support access to the Internet or corporate networks over regular phone lines at speeds up to 8M bit/sec.

Ariel Corp., Diamond Lane Communications Corp. and Interphase Corp. all plan to unveil products that support DSL services from phone companies and 'Net service providers. Systems will be available later this year, and all rely on cell technology to carry data over a DSL link.

According to the vendors, users may have to suffer modifications to their PCs and rewiring of their phone lines in order to get the service. But the carriers that will sell the services said they would take care of installation.

The vendors have differing means to generate ATM cells at the customer site, either by a PC card or a freestanding DSL modem that supports up to 8M bit/sec toward the user and 1.5M bit/sec away.

The Ariel plan calls for users to install 25M bit/sec ATM cards in their PCs to pump out ATM cells to a freestanding DSL modem.

But, alternatively, Ariel could offer a DSL card that generates the cells and incorporates the modem so the user just plugs the phone jack in the back of the PC, the company said.

An early version of the system will be available this summer.

Diamond Lane next week will announce a modular DSL system called Hitchhiker that also relies on a PC ATM card. It can take software downloads and is designed for easy access for maintenance. The system will work with Microsoft Corp. Windows 3.1, 95 and NT drivers, according to Dick Aloia, vice president of marketing at Diamond Lane. Hitchhiker will be available in July.

Interphase has a slightly different take on cells over DSL, preferring to use Frame-based User Network Interface (FUNI), an ATM-like protocol that uses packet framing. The company said that makes the gear less expensive by eliminating the need for segmentation and reassembly of chips that generate ATM cells.

At the end of the first quarter, Interphase will ship its first network interface card that supports PPP over FUNI. A complete DSL system will be available by year-end.

Both Ariel's card and modem will split off the analog voice channel that is also carried on a DSL line. That channel would run to an analog telephone. The splitter could also be posted outside the building.

Because the quality of the wiring to the PC can affect the speed the line will support, carriers and ISPs may run new wiring inside the customer premise to the PC, Ariel said. The analog phone will use the existing wiring.

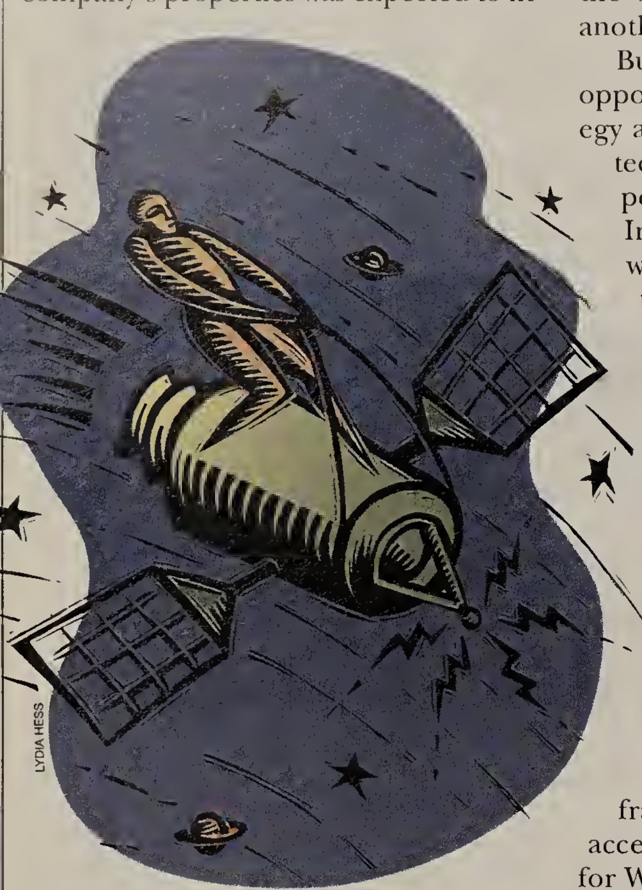
Carriers that are deploying DSL services said they are aware that users want to minimize hassles, so they will handle installation for the user or hire third-party integrators to do it. ■

THE NEXT LEVEL FOR DSL

Upcoming products from Digital Subscriber Line (DSL) vendors address key problems:

- ▶ Element management
- ▶ Security
- ▶ Central monitoring and diagnostics

As one network crashes, another is born



By Chris Nerney
Hilliard, Ohio

Jeff Wilson was facing the ultimate in system crashes.

The telecommunications manager at Red Roof Inns, Inc. learned his first day on the job that the satellite linking the company's properties was expected to literally fall from the sky. And the hotel chain's very small aperture terminal provider would only guarantee service through June 1, 1996 — just seven months away.

Wilson figured it would cost $450,000 to replicate the dying system by pointing the hotel chain's 240 VSAT dishes at another satellite.

But he decided to turn adversity into opportunity. Mounting a business strategy argument ("I never go at it from a techie standpoint," he says.), Wilson persuaded executives that Red Roof Inns needed a higher capacity network if it was to successfully manage the 350 properties it hoped to own by the year 2000.

"I was fairly convincing in my argument that you either invest in it now or you invest in it later," Wilson says.

Management quickly ap-proved a $2.5 million capital investment for a frame relay-based network. Wilson selected Intermedia Communications, Inc. to install a 240-node network that would handle 11 times the capacity of the VSAT system.

He opted for Motorola, Inc. 6520 frame relay access devices for network access, Hewlett-Packard Co.'s OpenView for WAN and LAN management, and an ISDN network for dial backup.

Racing against the clock, the project team finished linking every Red Roof site in the chain to the net on May 29, two days before the service guarantee expired.

According to Wilson, Red Roof Inns' network capacity has jumped from 2.4K bit/sec under the VSAT system to 56K bit/sec over frame relay. This quantum leap in bandwidth has allowed for the installation of software applications that would have been impossible with the old network.

Wilson says the company also plans to install a corporate intranet on top of the frame relay network infrastructure, allowing for Web pages and multimedia-based training.

"None of this would be possible if we simply replicated the old network," Wilson says. "The new network is working like a charm. It's better than we expected as far as reliability and flexibility.

"The good news," he adds, "is I brought everything in under budget."

The better news for Wilson is that his title has since changed from manager to director of telecommunications. ■

FORE buys its way into the wide-area ATM access market

ATM giant snatches start-up Cadia for about $150 million in stock.

By Jodi Cohen
Pittsburgh

FORE Systems, Inc. last week snapped up wide-area ATM equipment start-up Cadia Networks, Inc. for about $150 million in stock.

FORE hopes to use its latest purchase to strengthen its presence in the carrier and Internet service provider markets. The company's seventh acquisition should allow it to challenge companies such as Cisco Systems, Inc. for the rapidly growing ATM access market, analysts said.

Last year, FORE captured about 16% of the combined ATM carrier and ISP market segments worldwide, according to Vertical Systems Group, a consultancy in Dedham, Mass.

The Cadia deal — which adds WAN adaptation and concentration technology to FORE's portfolio — echoes 3Com Corp.'s purchase of OnStream Networks, Inc. as well as Cascade Communications Corp.'s acquisition of Sahara Networks, Inc. earlier this month, analysts said.

But David Schantz, senior manager of product management at Cadia, disagreed — at least about the Cascade agreement. "Sahara has a product that's focused at the edge of the enterprise where you have a mix of different interfaces feeding into ATM," he said. "Cadia's technology is focused in the central office. Our box — which is designed for service providers as they start evolving toward an ATM core infrastructure with multiple service adaptation at the edge — would sit between the customer premise equipment and the ATM backbone network."

PROFILE: CADIA NETWORKS, INC.

Based: Andover, Mass.
Founded: March 1996
Key products: ATM WAN access concentrators
Employees: 27

Greg Ferguson, president and chief executive officer of Cadia, will lead FORE's new access products group, which is expected to ship its first products in the second half of this year. ■

WAN MONITOR

Resolutions: Exercise, eat right and begin planning for the future

Putting together your list of resolutions for 1997? We'd bet strategic planning is one of the things you hope to tackle.

Because setting strategy is so difficult, many companies don't take time to do it. Often, whether end user or vendor, resources are scarce, and there are too many fires to fight to worry about where the network or the company should be headed.

Daniel Briere and Christine Heckart

As end users, your jobs are difficult because there are so many different technology choices, and the technologies and price points change rapidly. But if you think your job is tough, try being an equipment or service provider attempting to set a data communications strategy for the next three, five or even 10 years.

It's almost impossible to predict the future. Almost. There are a few ways to bring structure to this process.

The most state-of-the-art approach for looking into the future — and creating strategies and contingency plans — is to use scenario planning. Believe it or not, there is a whole community of people and companies that call themselves futurists. They're not clairvoyants, and they don't claim to know the future. They are mathematicians, modelers and analysts who bring a strict methodology to the problem of setting strategies. They create a variety of possible future environments; companies examine each scenario and determine whether their current strategy would help them succeed.

While it sounds a bit far-fetched, this approach is fascinating and applicable to an industry, like ours, that can change drastically in a short period of time.

These futurists must work with industry insiders to fully understand market dynamics. So, as part of our strategic consulting services, we have recently become immersed in the futurist community. In conjunction with The Futures Group, we developed four different Virtual DataWorlds that represent ways in which the data communications world could potentially develop over the next decade. Chief executive officers, strategic planners and marketeers can immerse themselves in these worlds and create strategies, contingency plans, competitive responses and so on.

What scenario planning does is force people to think outside the box and plan for the unexpected. Companies on limited budgets can create their own future scenarios from which to build strategies and contingency plans. It may not be a perfect way to chart a path forward, but it's better than letting the winds of chaos randomly chart your future strategy.

For those with more at stake, there are formal multiclient programs, such as Virtual DataWorlds, that can stress test your plans. Where these programs used to cost a fortune, multiclient programs such as this make crystal ball gazing affordable for service providers, vendors and very large end users. That's good news even for smaller end users because the advantages trickle down to create better services and products.

Survival and success take hard work and good planning. Think about creating scenarios and playing them out. The daily fires may rage, but no company can afford to neglect future planning and be successful over the long run. So add it to your list of New Year's resolutions!

Briere is president and Heckart is director of broadband at TeleChoice, Inc., a con-sultancy in Verona, N.J. They can be reached at dbriere@telechoice.com and checkart@telechoice.com.

Local Networks

Covering: Servers • Operating systems • LAN management
Hubs • Switches • Adapters and other equipment

Briefs

■ **NetPro Computing, Inc.** *of Scottsdale, Ariz., has upgraded its* **Novell Directory Services (NDS)** *management tool to include enhanced security and improved monitoring capabilities. DS Expert 2.1 supports NDS error codes, which improves the product's ability to detect problems with the directory service. New security settings enable administrators to restrict access to sensitive directory thresholds.*

DS Expert evaluation copies can be downloaded from www.netpro.com. The software costs $1,299 for the two-server starter kit, with additional agents costing $499. NetPro is offering free upgrades to existing DS Expert 2.X users.

NetPro: (800) 998-5090.

■ *The* **New York-New York Hotel and Casino** *in Las Vegas has bet its entire network on* **Hewlett-Packard Co.** *gear. The network, which supports more than 300 users, includes HP's AdvanceStack 10Base-T and 100VG-AnyLAN hubs, AdvanceStack Switch 2000s, NetServer file servers and Vectra PCs. The resort, which opened last week, relies on the HP equipment for the casino, finance department, front desk and room reservations.*

■ *Start-up* **Packet Engines, Inc.,** *based in Spokane, Wash., last week announced it has partnered with silicon provider* **Symbios Logic, Inc.** *to deliver* **Gigabit Ethernet products** *more quickly to market. The companies agreed to cross-license each other's technology, allowing the vendors to codevelop Gigabit Ethernet adapters, switches and full-duplex repeaters. The deal positions the firms among the first to market with Gigabit Ethernet products this spring.*

Former Novell chief resurfaces

Download the transcript of our interview with Robert Frankenberg, and read up on Caere, where Frankenberg is a board of directors member.

Enter the number to the right in the DocFinder box on the home page.

0202

Network World Fusion

http://www.nwfusion.com

Q&A Little has been heard from Robert Frankenberg since he abruptly stepped down as Novell, Inc.'s chief executive officer in August amid criticism that the software giant hopped on the intranet bandwagon too late. Now he is back, as a board of directors member for both optical character recognition (OCR) company Caere Corp. and net security firm Secure Computing Corp.

In one of the first press interviews he has granted since leaving Novell, Frankenberg discussed with *Network World* Senior Writer Christine Burns how Novell has adapted to the call of the intranet, what's ahead for the network industry and what's on tap for him.

Frankenberg *says Novell is on track with IntranetWare and GroupWise 5.0.*

What are the top issues facing the network industry this year?

Making the Internet fulfill its promise. People have given lots of promises, and it is far from fulfilling those in terms of performance and in the level of services that are needed. Right now, [the Internet] is far too difficult to use and slow.

The industry needs to put in place the kind of security that is needed to handle the greatest promise of the Internet: electronic commerce.

Thirdly, the industry is faced with putting the rest of the network in place. Not just for those companies willing to install significant Internet servers, but also reaching out and connecting [small companies and certain government agencies].

Narrowing the scope, what challenges lie ahead for Novell in the next year?

The new products, GroupWise 5.0 and IntranetWare, are doing very well out of the gate. Capitalizing on that momentum has got to be very high on Novell's list for 1997.

Do you think Novell has turned itself around enough to accomplish that end?

Identifying a new CEO to lead the company in that direction is another issue Novell will have to solve this year. But from every indication I see, the early acceptance of both GroupWise and IntranetWare bodes well for the company and its plans to move forward.

What do you think Novell needs in a new CEO?

I would rather not comment on that.

In hindsight, would you have done anything different as Novell's CEO?

No, I don't think so.

Do you have any advice for current Novell President Joe Marengi?

No.

What attracted you to Caere Corp.?

Caere has a very commanding position in OCR. They also have some fascinating new products coming like OmniForm Internet Publisher, which makes it easy to take existing documents, recognize them and put them up on the Internet in HTML format.

Will you try to push them more into the network arena?

I have a pretty good background to do that, so I am bound to be thinking about those things at board meetings and reviews. With Wayne Rosing now as their vice president of engineering, I don't think that they will need a lot of encouragement in that direction. Wayne has a long history in networking at Sun.

What have you done since you left Novell?

A couple of key things. One of the key reasons for stepping down was my wife's health, and I have been working to help her restore that, which has taken first priority.

In addition to my work on various boards, I have done a bit of consulting for several companies trying to make sense out of networking.

Do you have any plans to continue consulting or maybe head toward a start-up?

Right now, other than the boards that I have been involved in, I am not actively seeking out additional opportunities. ■

Intel intros 10/100 Ethernet switch

By Jodi Cohen
Hillsboro, Ore.

Intel Corp. last week bolstered its Fast Ethernet product line with its first 10M/100M bit/sec Ethernet switch.

The Express 10/100 Fast Ethernet Switch, which Intel jointly developed with NBase Communications, Inc., provides customers with a gradual migration path from regular Ethernet to Fast Ethernet switching as their workgroup bandwidth needs grow. The switch joins Intel's existing Fast Ethernet products, including 100M bit/sec hubs, switches and adapters.

The device offers eight dual-speed switched Ethernet ports along with two expansion slots for high-speed uplinks. The switch's autosensing feature allows each port to automatically operate at either 10M or 100M bit/sec speeds.

Customers can use the switch's two expansion slots for an additional four 10M/100M bit/sec Ethernet ports, or later for ATM and Gigabit Ethernet uplink modules that will ship in the second half of the year.

The dual-speed switch, which supports 4,096 media access control addresses and operates at wire speed, also can support as many as 64 port-based virtual LANs.

Also, the switch can be managed via software tools such as Intel's LANDesk Network Manager, as well as any SNMP management console. In addition, the Express 10/100 Fast Ethernet Switch supports the first four Remote Monitoring groups.

But analysts said Intel is a bit late to the 10/100 party, with similar offerings already available from competitors Bay Networks, Inc., Cabletron Systems, Inc. and Cisco Systems, Inc.

Intel, however, plans to price its product a bit more aggressively than its rivals. For example, Intel's switch lists for about $625 per port, while Bay comes in slightly higher at about $685 per port for its 28115 switch and Cisco's Catalyst 2900 is priced at about $1,000 per port.

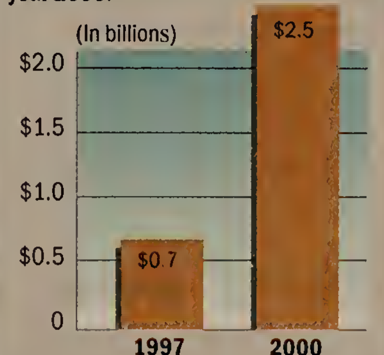
"Intel is really pushing 100M bit/sec Ethernet to the desktop," said Esmerelda Silva, an analyst at International Data Corp., a market research firm in Framingham, Mass. "And Intel's [low] price point is an important part of migrating those workgroup customers from 10M to 100M bit/sec Ethernet."

The switch is priced at $4,995 and is available now. The two-port 10M/100M bit/sec Ethernet switch module costs $1,995, and a fiber version will ship for $2,495. Both expansion modules will be available at the end of the month.

©Intel: (800) 538-3373.

FAST ETHERNET ON FIRE

The switched 100Base-T market is expected to more than triple* by the year 2000.



*ESTIMATED
SOURCE: IDC, FRAMINGHAM, MASS.

WIRED WINDOWS

Going beyond bulletin boards

Back before there was widespread Internet access, and when online services charged connect time by the minute, many of us relied on bulletin board systems (BBS) run by a local user group, a vendor or an individual with lots of telecommunications gear. These systems contained discussion groups, file libraries and perhaps even games.

I'm sure there are still BBSes around, but I'm not sure if there are many serving useful business purposes. So what are the companies that wrote and sold BBS software doing these days?

At least one of them appears to be making the transition to the Internet/intranet very nicely. Galacticomm, Inc. has just released Version 3 of its Worldgroup software in a native 32-bit format for Windows 95 and NT.

Worldgroup is an Internet/intranet product that offers teleconferencing, file libraries, private E-mail, public messaging, questionnaires and Internet connectivity. Its E-mail system offers gateways to Simple Mail Transfer Protocol and Message Handling Service (MHS) products, while its public message board and discussion group component can act as a Network News Transfer Protocol server tying together internal discussions with Usenet newsgroups.

For added security, Worldgroup can use IPX/SPX for transport rather than TCP/IP, or it can use both. In fact, Galacticomm uses the term "firewall" to describe a setup in which your intranet is connected to the Worldgroup server via IPX/SPX, while a second network card uses TCP/IP to connect to the Internet.

Dave Kearns

While Worldgroup relies heavily on HTML, a Web browser is optional. Although there is a plug-in available for Netscape Communications Corp.'s Navigator 2.0 and Microsoft Corp.'s Internet Explorer 3.0, Galacticomm's Worldgroup Manager software is all you really need. This becomes your "active desktop," allowing access to data, files, discussions and conferencing by clicking the appropriate icon.

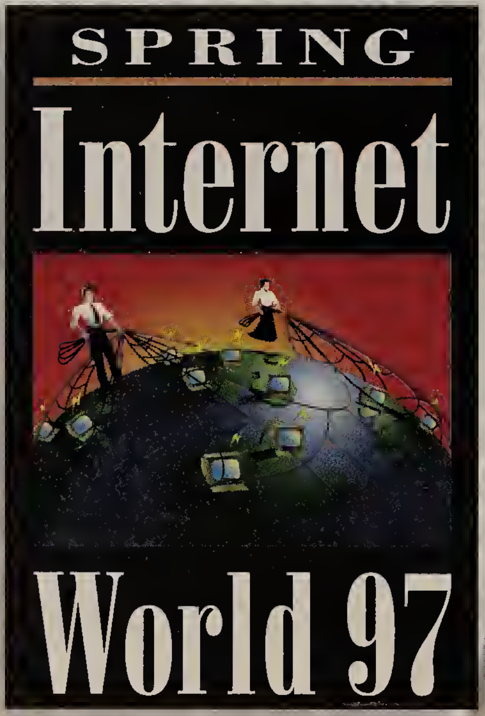
Worldgroup 3.0 will support as many as 250 simultaneous users under Windows NT, and the server can run as a service upon loading Worldgroup 3.0 at start-up. For nostalgia buffs, or those with remote users not connected to the Internet, Worldgroup server also supports direct dial-up connections over regular phone lines, ISDN or X.25.

You can find out more by downloading Worldgroup Manager and trying out the system at www.gcomm.com/.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at dkearns@msn.com.

Tip of the week

If you sell or buy goods through a Web site, you should be aware of a new law in California regarding deliverables. The law states that Web sites, like mail-order shops, must notify customers and allow them to cancel orders if goods cannot be delivered within 30 days. For details, visit www.leginfo.ca.gov/calaw.html, click on Business and Professional Code, and enter 17538 in the search box. The law affects any site with Californians as customers.



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Briefs

■ **Radnet, Inc.,** *a Cambridge, Mass.-based start-up, today will unveil WebShare 2.0, the latest version of its* **Web-based groupware.**

Initially released last June, WebShare includes the WebShare Server, which stores application information and manages the presentation of documents to the end user, and the WebShare Designer, an application development tool.

Bulens

Founded by Donald Bulens, a former senior executive at Lotus Development Corp., Radnet is among a growing number of companies attacking the groupware market with purely Web-based products.

Radnet: (617) 577-9422.

■ **NexGen SI,** *an Irvine, Calif.-based software consulting company, has created a set of* **client/server Web objects** *for Carolina Power & Light Co. that will let the utility's 7,000 employees use browsers to access and update their benefits, payroll and 401(k) information on PeopleSoft, Inc.'s human resources applications.*

The PeopleNet project uses a corporate Web and the new Web modules to create a self-service application and reduce overhead.

NextGen: (800) 663-9436.

■ *Sheridan Software Systems, Inc. in Melville, N.Y., this week will release ActiveThreed, a set of seven 32-bit* **ActiveX controls** *that give Microsoft Corp. Visual Basic applications the look and feel of Web applications.*

The product can be used to update previous versions of Threed controls, widely used in Visual Basic applications.

ActiveThreed, priced at $139, ships this month.

Sheridan: (516) 753-0985.

A message from Software.com's new technology chief

Internet authority Paul Mockapetris says his company has what it takes to fight off bigger rivals.

Q&A

How can an upstart company like Software.com be expected to compete against giants, such as IBM/Lotus Development Corp. and Microsoft Corp., that lead the electronic messaging market? One way is to hire smart people, which is what the Santa Barbara, Calif.-based vendor of Internet- and intranet-based messaging products did last month when it named Paul Mockapetris as its chief technical officer. While at the University of Southern California's Information Sciences Institute, Mockapetris was principal architect of the Domain Naming System (DNS), the Internet's global naming scheme. He also wrote the first implementation of the Simple Mail Transfer Protocol and is a former chairman of the Internet Engineering Task Force. Last week, Mockapetris spoke with *Network World* Senior Writer Chris Nerney.

Software.com's *Mockapetris is focusing on large E-mail networks.*

The messaging market is big and growing. How well positioned is Software.com?

Software.com offers a completely open implementation of the Internet Protocol. We're obviously betting that open standards will have a very large appeal and that people want to be free to choose best-of-breed solutions in that space. But obviously, there are powerful incentives for other people to try and figure out how to keep [the Internet Protocol] proprietary.

The big messaging vendors — Lotus, Microsoft and Novell, Inc. — are moving beyond proprietary systems to roll out Internet versions of their products. How is Software.com going to penetrate its installed bases?

Those companies are starting to upgrade their products now. They don't offer things at the high end like we do. Right now, at the high end, there are no comparable offerings to InterMail out there. Microsoft is supposedly developing one with Normandy, but that's some ways down the road.

Also, people like our Web-based interface. That's one of the big hits. You can just manage the thing from the Web. If I had the secret about exactly how people decide which mailer they were going to use, and there was one rule, then I'd be answering that. But there doesn't seem to be.

What is your primary mission as Software.com's CTO?

Software.com is really the leader in standards-based, especially large-scale, SMTP mail support. So there's the general issue of making sure the company supports the directory and the multimedia aspects that are being added to mail, as well as or better than the competition. The specific things we're looking at now are things like advanced directory and DNS support, as well as the usual kind of [Lightweight Directory Access Protocol] and [Internet Message Access Protocol] support for our mail products.

What I'd like to see in the community in general is . . . I think people have finally given up a lot of the proprietary mail backbone approaches. They're looking to make the Internet standards bulletproof so we can quit asking: Is it business-quality?

There's a lot of controversy surrounding the Internet Society's plan to expand the number of domain registrars. Where is that proposal headed?

The problem for me in what they've proposed is that it's a bureaucratic solution to taking control, but it doesn't really point out any particularly innovative directions. They've kind of steered clear of the hard issues and made some suggestions. I think it's a small step. Hopefully, it will at least get people started thinking about new things that could be done.

Some question whether the DNS can survive. Do you?

People have been saying that for the last 10 years, so I suspect they'll be right eventually. There's no reason why, with a few technological improvements, that the current system couldn't expand to a 100 million or a billion names. The real question is: When is the replacement that really adds value to the Internet community going to show up? Rather than, when is it going to fall over and die? 'Cause, I'm sorry, it's not going to. ■

Read the complete transcript of our interview with Software.com's Paul Mockapetris.

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Network World Fusion
http://www.nwfusion.com

Saros bundles document management

By Paul McNamara
Bellevue, Wash.

Saros, a FileNet Corp. business unit, this week announced the upcoming debut of Discovery Suite, an ensemble of Windows applications the company hopes will open eyes among customers looking for more than rudimentary document management.

The scoop on Discovery Suite

Components:	Saros Document Manager FileNet Ensemble Watermark Client
Pricing:	From $7,500 for a 10-client license to $49,500 for a 100-client license
Availability:	Q2 97

Discovery Suite combines the foundation of Saros Document Manager with the workflow capabilities of FileNet Ensemble and the document imaging features of Watermark Client. It is a mix the market needs and wants as demands on corporate intranets expand, according to analysts and users.

FileNet bought Saros last year and acquired Watermark in 1995.

"This is the first illustration of why those acquisitions were made," said Ynette Gibbs, desktop product manager for Saros.

Discovery Suite, available in 16-bit and 32-bit versions, requires a Saros Document Server for Microsoft Corp.'s BackOffice or a Saros Mezzanine library system; both products are sold separately.

Purchasing Discovery Suite will save a company 40% over the cost of buying its components individually, Gibbs said.

Established FileNet customers, in particular, will welcome the opportunity to leverage their existing investments through the added functionality and convenience of the suite installation, said Scott McCready, a principal at International Data Corp. in Framingham, Mass. "Essentially, the user gets what they want," he said. "But the IT professional can be assured that desktop functionality remains standard from a support, maintenance and administration point of view."

More organizations are looking to put Discovery Suites's functionality on more desktops, said Martha Williams, product manager for document management solutions at Coleman Information Solutions.

©Saros: (206) 646-1066.

SHARED LOGIC

Web sites: Should you build or buy?

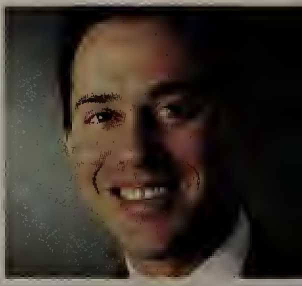
When you sit down to design a network or client/server system, you know what things to keep in mind: the system's goal, who the users are, what sort of technology is available, etc. But when it comes to building an Internet or intranet site, there are no industry standards for the design and development process, and there is certainly no standard for how much it should cost.

As you evaluate the options for your corporate Web site, there are new and traditional considerations to keep in mind. And there are new costs, which may surprise you. I spoke with creative technologists at a couple of prominent Silicon Alley Web site building companies to find out how the game is played.

Coby O'Brien is director of interactive technology at Saatchi & Saatchi Advertising (www.saatchiny.com). What distinguishes his approach from those of people at Web-only companies is a total focus on the consumer.

For example, O'Brien organized a team that worked to develop the right combination of content and functionality the Procter & Gamble Co. (www.clothesline.com) site required for its Tide laundry product. And what do people who go to the Tide Web site want to see? According to O'Brien, they want to see the Stain Detective, which gives information on how to deal with mundane and unusual cleaning challenges.

O'Brien says site building is closely aligned with advertising and should be viewed as an integral component of a marketing plan. Thus, building a site requires not only technologists and graphics designers, but advertising savvy, focus groups and, above all, a clear message that "talks to the user, not at them," he says.



Marc Myers

Peter Seidler is president and creative director at Avalanche, which builds high-profile sites such as *Cosmopolitan*'s. His firm has a well-organized approach to site building that begins with two key documents.

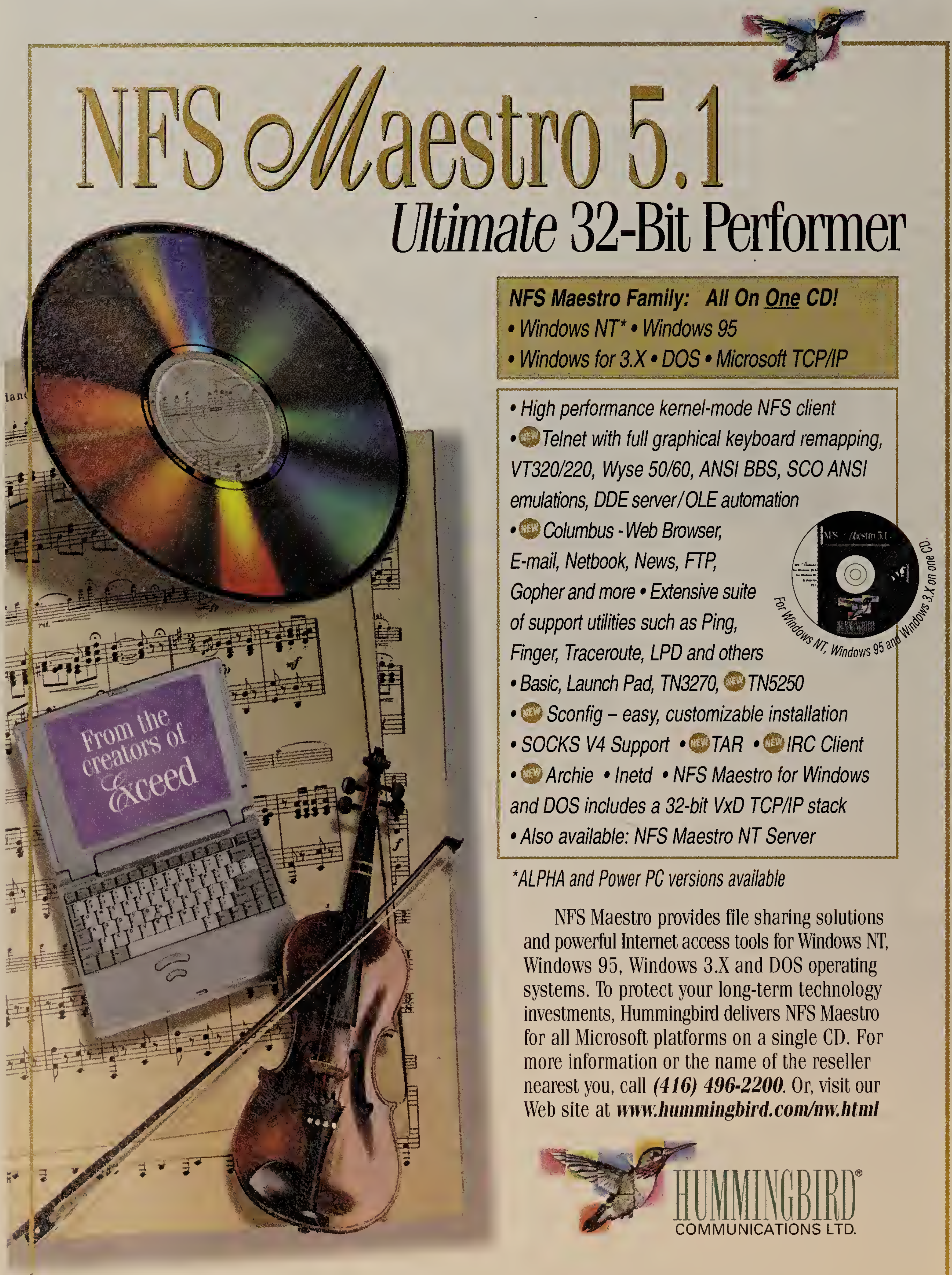
The Creative Brief gives the customer one or more options for the site's look and feel, while the Technical Requirements document details the proposed technologies. Both are based on results of a series of customer meetings, internal brainstorming at Avalanche and research on the client's market position.

Seidler emphasizes that the selection of a look and feel on the Web is the equivalent of selecting a corporate identity. Your home page is your corporation's digital identity.

So what does all this fancy stuff cost? It's not cheap to go with a high-end firm such as Saatchi or Avalanche. All the firms I talked to confirmed that the price of development is dependent on the complexity involved, but a fully developed project could easily cost more than $1 million. This could be for a large site that includes transactional shopping basket capabilities, database interfaces, innovative graphics, dynamically generated pages and more.

For a very basic site, you may still have to spend about $50,000 if you go with a high-end design firm. If you need to cut costs, on the other hand, you can always build it yourself for a few hundred dollars with the help of a commercial Web site publishing tool. That's the beauty of the Web.

Myers is chief executive officer of Client/Server Connection, Ltd., a New York-based software development company. He can be reached via the Internet at mmyers@cscl.com.



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OBJECT TECHNOLOGY

There's an ORB in your future Web application

Fortunately, vendors such as Netscape and Oracle are trying to make objects painless.

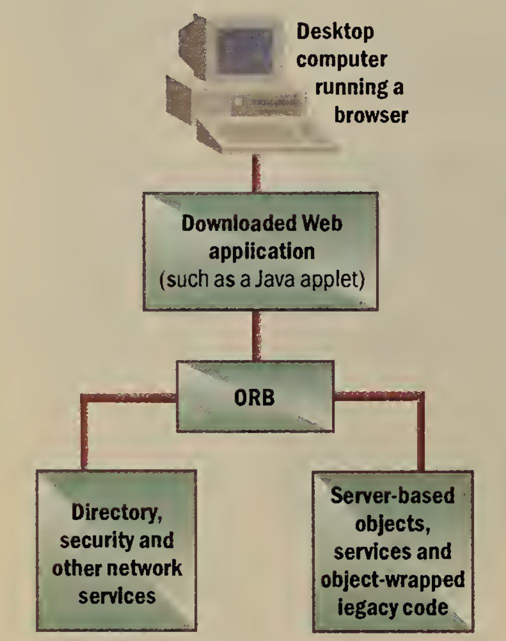
By John Cox

Whether or not you're aware of it, you've probably taken the plunge into distributed objects if you're building a corporate Web.

But don't worry too much: Many vendors are working to make objects as painless and invisible as possible.

NETSCAPE ONE ARCHITECTURE

Companies such as Netscape are using object request brokers (ORB) as a key technology for building and running component applications on the Web.


Desktop computer running a browser
Downloaded Web application (such as a Java applet)
ORB
Directory, security and other network services
Server-based objects, services and object-wrapped legacy code

Object technology, in general, has long been an esoteric programming religion. But the Web has a natural affinity for objects.

As it has spread in the past 18 months, and the Java object-oriented language has flourished, there has been a growing awareness among end users that the Web is a collection of discrete components that have to interact over intranets and the Internet. What's needed is a way to make the interactions happen more easily.

The next step toward easier interactions will take place this week when the Object Management Group (OMG) meets in Tampa, Fla. During the meeting, the OMG is expected to create the Internet Facilities Task Force, which will be charged with defining Interface Definition Language (IDL) interfaces to existing Internet protocols such as File Transfer Protocol and Simple Mail Transfer Protocol.

IDL is the OMG's standard language for defining an object's boundaries, so other objects know how to interact with the object and what it can do. IDL interfaces will give developers working in C/C++, Java and other object languages a consistent way to interact with these protocols, according to OMG President Chris Stone, who expects initial specifications by year-end.

The most fundamental distributed object technology, however, is the object request broker (ORB), which in simplest terms creates a client/server connection between two objects.

Neither the objects, the programmers who create them, nor the end users who use them need to know anything about the other objects in the network because the ORB is designed to handle the interactions.

In just the past few months, Netscape Communications Corp. and Oracle Corp. have announced application architectures — the Netscape Open Network Environment (ONE) and Network Computing Architecture (NCA) — in which ORBs are vital to running and managing objects over the Internet.

ORBs that are written to the OMG's Common Object Request Broker Architecture (CORBA) 2.0 specification can work together over a network using the Internet Inter-ORB Protocol (IIOP), which works over TCP/IP networks.

But there is a rival to CORBA: Microsoft Corp.'s Distributed Common Object Model (DCOM), which has its own communications protocol but currently runs only on Microsoft 32-bit operating systems. Microsoft's ActiveX component architecture, which is a set of specifications for building components, uses DCOM to communicate over the network.

Although CORBA, from the outset, has focused on solving distributed object problems, Microsoft's desktop dominance makes ActiveX and DCOM important.

"What was missing in distributed objects was a common protocol, and an industry commitment to it, to underline that it was safe and worthwhile to program to this protocol," says Jens Christiansen, chief technology officer at Visigenic Software, Inc.

"That's changed with Netscape: Now there will be millions of Web browsers and servers with IIOP running on them, making it a very viable distributed object solution," Christiansen says.

Netscape ONE, announced last summer, is a set of specifications for building and deploying network applications. It relies on Visigenic's IIOP implementation, the core of Visigenic's CORBA-based ORB, which Netscape will include in future releases of its browser and server products.

Developers working with Java, for example, will be able to write and reuse client applets that simply call the ORB for whatever services are needed.

"The vision of the Internet is that you have software components flowing around the network and various services that they need to connect to," says Don Depalma, a senior analyst at Forrester Research, Inc., a research company in Cambridge, Mass.

"This is the core of the IIOP initiatives: standard interfaces to components on the network and to services, including legacy applications wrapped with an object interface," he said.

This describes a multilevel application architecture that corporate MIS groups have been edging toward for several years as an alternative to simple client-to-database server applications.

These applications have faltered under large loads and have proven to be difficult to change, but the Web is increasing the need for more robust and flexible applications.

"Corporate MIS groups need to start thinking about a client-to-services architecture," Depalma says. "The client talks to a middle tier, which might deliver the service itself or redirect the request to other servers. This is the only way to get scalable applications for the Web." ■

The OMG's view of the Web

Q&A The future is the Web, and the Web is objects. That's the message being trumpeted by the Object Management Group (OMG) and its president, Chris Stone, who recently spoke with *Network World* Senior Editor John Cox.

Why do you see such a synergy between the Web and distributed objects?

The Web today is 80% to 90% HTML documents. You don't see distributed applications being developed on the Web as a platform.

To do that, you need to upgrade the current Web protocols, such as using [the Common Object Request Broker Architecture's Internet Inter-ORB Protocol] in place of HTTP. Couple this with Java, and you have a pretty powerful development model.

Vendors such as Netscape, Oracle and Lotus are all incorporating CORBA and IIOP within their products and application architectures. Why?

It gives you a standard interface that everyone can write to and a standard protocol for browser-to-server communications.

The ORB is becoming the infrastructure — the lower and middle layers of the network.

Microsoft wants the infrastructure to be [Distributed Common Object Model] and ActiveX. Our job is to make sure the infrastructure is standardized.

Are corporate users picking up on this idea of ORBs as infrastructure for Web applications?

In the past six months, we've seen Web- or forms-based interfaces and intranet applications using IIOP and CORBA. The Netscape and Oracle announcements, [and those from other companies], have prompted a lot of end users to move in that direction. They've legitimized the Internet as a development platform. We're also seeing a lot of the tool vendors using IIOP and CORBA.

But Microsoft's ActiveX and DCOM already have a lot of corporate users and third-party support.

I firmly believe ActiveX will remain a desktop phenomenon. Outside of the Windows world, there are things like television set-top boxes, embedded systems, real-time systems. You don't run Windows on that kind of stuff.

These kinds of applications need CORBA, IIOP and Java. But ActiveX is part of the overall development puzzle, and it's included in our plans to integrate CORBA with COM/DCOM.

MARRYING OBJECTS WITH THE INTERNET/WEB

Key Object Management Group projects this year, according to President Chris Stone, include:

- Mapping Java applications to CORBA objects.
- Integrating CORBA and DCOM.
- Adding Secure Socket Layer support to CORBA.
- Defining CORBA Interface Definition Language interfaces for existing Internet protocols such as File Transfer Protocol and Simple Mail Transfer Protocol.

Intranets & the 'Net

Covering: Internet Technologies and Services
for Collaboration and Electronic Commerce

Briefs

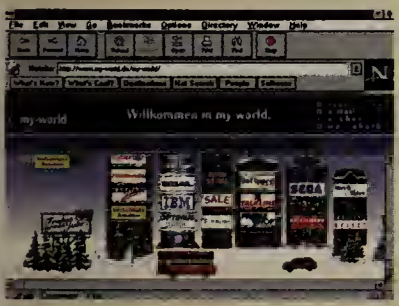
■ **Axent Technologies, Inc.** *Chairman and Chief Executive Officer Rich Lefebre last week announced the company is* **purchasing Digital Pathways, Inc.,** *the Mountain View, Calif., maker of token-based authentication products.*

Lefebre said the $24.8 million deal will expand the firm's distribution line by adding 50 new resellers.

■ *Electronic data interchange software vendor* **St. Paul Software** *has integrated its EDI client/server product spEDI*EClipse with Oracle Corp.'s Applications 10.6 for Accounts Receivable, Order Entry and Purchasing to automate the* **transmission of invoices,** *customer orders and shipping notices over corporate intranets.*

St. Paul Software: (612) 603-4400.

■ *Boston-based technology provider* **Neurotech International, Inc.,** *with German parent company, Neurotech*



Hochtechnologie GmbH, announced the opening of the Europe-based Internet **online shopping mall,** *called My-World. It is now the electronic commerce site for German retailer Karstadt AG, Sony Corp., Sega Enterprises, Ltd., Nintendo Company, Ltd., Optimus Bank and German travel agency Neckermann Reiseburo.*

■ **AccountMate Software Corp.** *has started shipping Visual AccountMate Payroll, a Windows-based software package that lets users automatically* **calculate payroll taxes** *and export the payroll tax data to the Internal Revenue Service.*

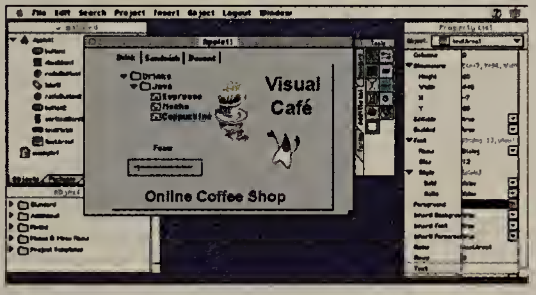
AccountMate Software: (415)

Symantec ships 'RAD' Java tool for Mac users

By Ellen Messmer
Cupertino, Calif.

Thanks to Symantec Corp., Macintosh users can now blast out Java applets without coding, just like Windows users have started to do.

Like the Windows version that shipped year-end 1996, Symantec's Visual Cafe for the Macintosh automatically generates Java code for 80 different components, such as buttons or menu bars. All a developer needs to do is express the interaction between objects using drag-and-drop.



Symantec's Visual Cafe *is the first rapid-application development tool for Java to hit the market.*

The $199 Visual Cafe and its big brother, Visual Cafe Pro, which connects Java applications to relational databases, are the first of a new breed of Rapid Development Tools (RAD) that simplify and speed Java development, analysts said.

"This is really the first tool of its kind for Java," said Evan Quinn, research director of Internet software at Framingham, Mass.-based consultancy International Data Corp.

Until now, Java tools have been lumped in a category called integrated development environment (IDE), Quinn said, because they require an extensive knowledge of coding. As a result, most IDE tools today appear to be in the hands of the Internet software vendors rather than corporate developers, Quinn noted.

RAD tools are expected to greatly increase the use of Java in corporate intranets this year.

Users so far like what they have seen. Dr. Richard Peters, a physician who is an instructor at Harvard Medical School, has been using the Macintosh version of Visual Cafe to add Java to a Web site on leading medical discoveries (www.medsitenavigator.com).

"Writing the Java code is time-consuming and somewhat boring, frankly," said Peters, who plans to augment the HTML-based site with commonly used medical and scientific equations written in Java for interactive use by physicians.

Visual Cafe generates Java code that can be reviewed, giving Peters more time for what he finds more intriguing — compiling site content or working on a homegrown Java-based search engine. Peters' main criticism of Visual Cafe is it is too slow.

Visual Cafe 1.0 does not yet support Sun Microsystems, Inc.'s Java Development Kit 1.1 (JDK), which was long delayed and is now in beta. That means applications may not work with JDK 1.1-compliant browsers due out this year, conceded Allen Williams, a Symantec product manager.

Download info on Java development kits from Microsoft, Borland and others.

FIND IT ON 0204 FUSION

Enter the number above in the DocFinder box on the home page.

Network World Fusion
http://www.nwfusion.com

In addition to Visual Cafe for the Macintosh platform, Symantec last week also began shipping the Macintosh version of Visual Page, a Web authoring tool that provides visual drag-and-drop of Web page elements and direct editing of HTML code.

Visual Cafe, which costs $199.95 is available now from Symantec Corp. and in retail stores.

ⒸSymantec: (800) 441-7234.

DID YOU KNOW?

According to research firm International Data Corp., the Java IDE product dominated the market with 200,000 seats shipped in 1996. That number is expected to grow to 400,000 this year. Java RAD tools accounted for only 5,000 seats in 1996, but that number is expected to grow to 200,000 this year.

WebEtc lets users share 'Net accounts

By Carol Sliwa
Phoenix

Microtest, Inc. claims it has a more cost-effective way for companies to connect to the Internet for Web browsing, E-mail, File Transfer Protocol transfers and newsgroup reading. The company is pitching WebEtc, software that lets users share one modem and one Internet account.

Intended for small offices or departments in larger companies, the WebEtc software offers proxy server features that act as a traffic director for routing IP packets to the proper users.

WebEtc loads on a PC running Windows 95 or NT, and supports all standard analog and ISDN modem connections. The WebEtc PC serves as the gateway for other computers on a Novell, Inc. or Microsoft Corp. network to access the Internet.

Those other computers, whether Macintosh or PC, do not need any special client software other than a Web browser.

With multiple users accessing the Internet through one line, performance will hinge on a variety of factors, including the modem's speed, the speed of the Internet service provider's connection and the activity on the ISP's computers and the Internet backbone, the company said.

Microtest claims users should not see any appreciable slowdown in Internet access with one to five users. For more than five, the company suggests an ISDN modem.

WebEtc Pro features advanced security features, letting administrators monitor usage and control who has access to the Internet and what sites they can visit.

Beginning today, the software can be downloaded for a 30-day free trial from www.microtest.com/webetc.

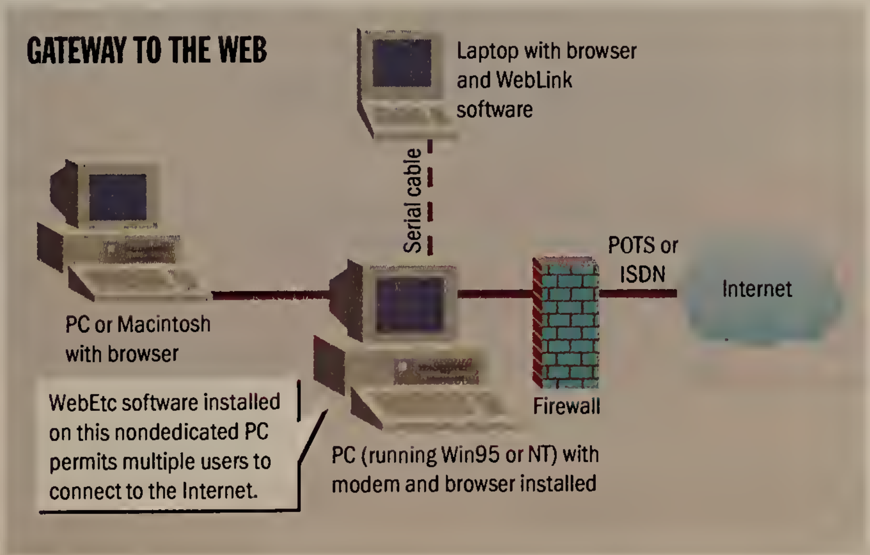
The WebEtc standard edition costs $149 and will be available Jan. 31. The Pro version of WebEtc, due out at the end of February, lists for $295. Prices are based on up to 20 simultaneous users.

Site licenses are available for more than 20 users.

The WebEtc software package also includes WebLink software that will let laptop computers access the Internet. The laptop is connected to the WebEtc PC using serial cable.

ⒸMicrotest: (800) 526-9675.

GATEWAY TO THE WEB


Laptop with browser and WebLink software
Serial cable
PC or Macintosh with browser
POTS or ISDN
Internet
Firewall
WebEtc software installed on this nondedicated PC permits multiple users to connect to the Internet.
PC (running Win95 or NT) with modem and browser installed

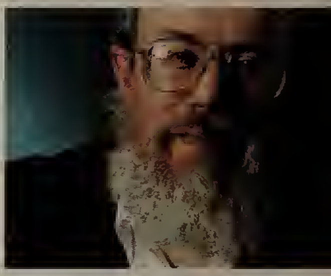
'NET INSIDER

Was Bob a year too early?

For the past year or so, Bob Metcalfe and I have been trading barbs over his rather well-reported predictions that the Internet was going to collapse during 1996. It is now 1997, and in his last 1996 *InfoWorld* column, Bob sort of — but not quite — ate his words.

At one level, the predictions — at least as they have been understood — were quite silly. It is hard to imagine the Internet collapsing. The Internet is not one thing, it is a collection of things (ISPs). One or more of the components might — and undoubtedly will — have serious problems. But to say that this means the whole 'Net will be down is quite a stretch. In terms of user perceptions, Bob's predictions have some validity. It matters little to a user trying to download Bob's latest pearls of "wisdom" where a breakage or slowdown is in the path; the user still sees poor performance. But overall, any prediction of the collapse of the Internet seems more than a bit simplistic.

Come to think of it, I wonder if Bob was just a year or so too early with his predictions. This Internet thing continues to confound the traditional (telephone company- and mainframe-thinking) pundits. These people think the Internet cannot possibly continue to grow without some "killer app," the establishment of settlements between ISPs, major commercial content providers, usage-based pricing or some other favorite fixation. One wonders why observers such as trade journalists continue to pay attention to these prognosticators, with their lengthy records that are unblemished by accuracy.



Scott Bradner

The 'Net continues to grow in users, traffic, sites and public mind share at an astonishing rate. And this is before new initiatives, such as the Clinton administration's push to get the Internet into all schools and libraries, have really been started. When this sort of thing happens, there will be still more pressure from the kids for mom and pop to subscribe to an Internet service so they can have the same access at home as they do in school. This, coupled with new trends such as WebTV, will accelerate the growth curves.

At this point, it is hard to see how ISPs can continue to keep ahead of the demands. Continued unbridled growth is a hard argument to make economically, and the availability of the high-performance routers and switches that will be required is questionable. Coupled with the growing shortage of fiber in the ground (and under the water), Bob's crunch may actually be on its way.

This is not to say that the Internet will sink into the mud next week, but trying to reach an undersized server over a too-small link through an underfunded ISP will not produce the best of results. I'm sure this will bring out the pundits in droves saying all will be fine when the Bellettes decide to help and when traditional telephone-like, traffic-based pricing is instituted to install discipline in the users. In some universe, that might be true, but not in this one. The ISPs will have to do it on their own, and we may have some fun times while they figure out how to do so.

Disclaimer: With its own fiber in the ground, Harvard is above these (and some say many) real-world problems, but the above are my own trepidations.

Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu.

NetworkWorld
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"Frame relay has quickly become the foundation for many corporate WANs, offering significant cost savings and flexibility. But building and managing a frame relay network requires new skills and expertise."
John Gallant,
Editor-in-Chief
Network World

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Strategies and Solutions

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5. Gain an understanding of the direction of the frame relay market
6. Analyze the differences between major U.S. frame relay providers
7. Learn how to save money by consolidating your voice and data applications over frame relay
8. Understand the alternative approaches to running SNA applications over frame relay
9. Learn how pricing structures differ among carriers and how you can take advantage of these differences to obtain the best service bargain
10. Analyze case studies of various network types to see how frame relay can be best implemented
11. Learn about new and likely future service enhancements which could impact your network
12. Examine your existing carrier and services features to see if they are best suited for your current and future network requirements

1997 LOCATIONS AND DATES

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Technology Update

Keeping Up with Network Technologies and Standards

NUTTER'S NETWORK HELP DESK

Ron Nutter, a Master Certified Novell Engineer and Groupware CNE in the Lexington, Ky., area, tracks down the answers to your questions. Call (800) 622-1108, Ext. 476, or send your questions to rnutter@world.std.com.

Since I installed Novell, Inc.'s NetWare 3.12 on my file server in mid-1994, I have not applied any patches or upgraded the NetWare Loadable Modules (NLM). We are now adding software that requires NLM upgrades, and I am concerned that these new NLMs will conflict with older versions. To avoid problems, I want to systematically upgrade the operating system, drivers and NLMs. Do you have any guidelines on how to do this?

Chris Marroquin, Riley Hospital for Children, Indianapolis

You have good reason to be concerned about updating the NLMs. I recommend you create a backup for each directory on the server. Then place a copy of the files that are being replaced in the appropriate backup directory.

I also recommend you update the NLMs and let them run for a few days before installing the software that requires the new NLMs. If you detect problems, you will be able to selectively go back to the older NLMs by using the copies of the files you placed in the backup directories.

Check Novell's Web site at www.novell.com or the NWOSFiles download area on CompuServe for a complete listing of all the updates you'll need so Novell's support group considers it a baseline server installation.

Note that Novell has significantly changed the patch kit that fixes problems in SERVER.EXE. Unlike previous versions, the new kit installs all the patches; it is the recommended way of installing updates.

Novell also changed the install procedures for the CLIB.NLM. You can now install the updates using the INSTALL.NLM at the server instead of running a separate INSTALL.EXE. I recommend making a patch directory on the server and placing copies of the updates you'll be applying on the server. These copies will help you recover quickly in the event of a major server disaster.

'Caching' in on the net PC trend

A new generation of client-based network caching technology can provide a way to reduce network traffic and server loads created in net PC environments.

By Clinton Battersby

Talk of Intel Corp. and Microsoft Corp.'s network PC is all the rage these days, but these devices will be of little value if they turn the corporate LAN into a parking lot.

Net PCs are a hot topic for network managers because of potential lower costs and ease of management. Net PCs typically will have a hard disk to support the operating system but will load application software, documents and shared files from file servers over the network.

Although feasible for a relatively small network of users or on a new LAN designed around the net PC computing model, the network load of several hundred net PCs could easily bring file servers and the existing infrastructure to a screeching halt.

But a new generation of client-based network caching technology can provide a way to reduce network traffic and server loads created in net PC environments.

Cache infusion

LAN caching is similar in architecture to conventional hard disk or CD-ROM caching, except that the source of data is a LAN. The LAN cache uses a local hard disk to cache data requested over a LAN from a file server.

Since the LAN is typically much slower than the local hard disk, caching data already read from the LAN significantly improves the performance the user experiences and frees the network resource to handle other requests.

The latest versions of Microsoft's operating systems — and even the new NetWare Client 32 redirectors from Novell, Inc. — offer memory-based network caching.

Unfortunately, these caches are volatile — they lose their contents when power is removed. What's more, memory-based LAN caching is limited in size by available memory.

The new generation of LAN caches rely on the hard disk to preserve data even when power is removed. When power is restored, the cached data is available immediately.

In addition, hard disk-based LAN caches can be much larger than memory-based network caches, limited only by available hard-disk space.

LAN cache software is typically packaged as a network redirector loaded on top of the networked client's existing network operating system shells. The software intercepts file read and write requests to the network file system, and redirects them to the LAN cache. The first time a user enters the Microsoft Excel program, for example, the computer reads the data required to run the application from the file server and writes it to the LAN cache.

The next time the user calls up Excel, the computer retrieves the information it needs to run the application from the LAN cache.

My cache, our cache

Two types of LAN caches offer advanced performance for net PCs: client caches, which reside on the net PC to off-load the file server and LAN segment; and shared caches, which reside in a workgroup setting to accommodate requests to remote file servers and to off-load the WAN.

For the highest performance over LANs and WANs, a combination of local and shared caching provides the best potential. With this setup, whenever a request for information is made, the LAN cache redirector first checks the local cache for the requested information. If it is not available in the local cache, the request is forwarded to the shared cache.

A shared cache may be installed on an existing file server, or embedded in a hub or switch accessed by a group of clients across a LAN.

A shared cache is not a file server, and all rights to access data in the shared cache must first be granted by the original file server. Without a shared cache, each net PC that needs to read data from a remote file server would have to go out separately across the WAN to read and cache data.

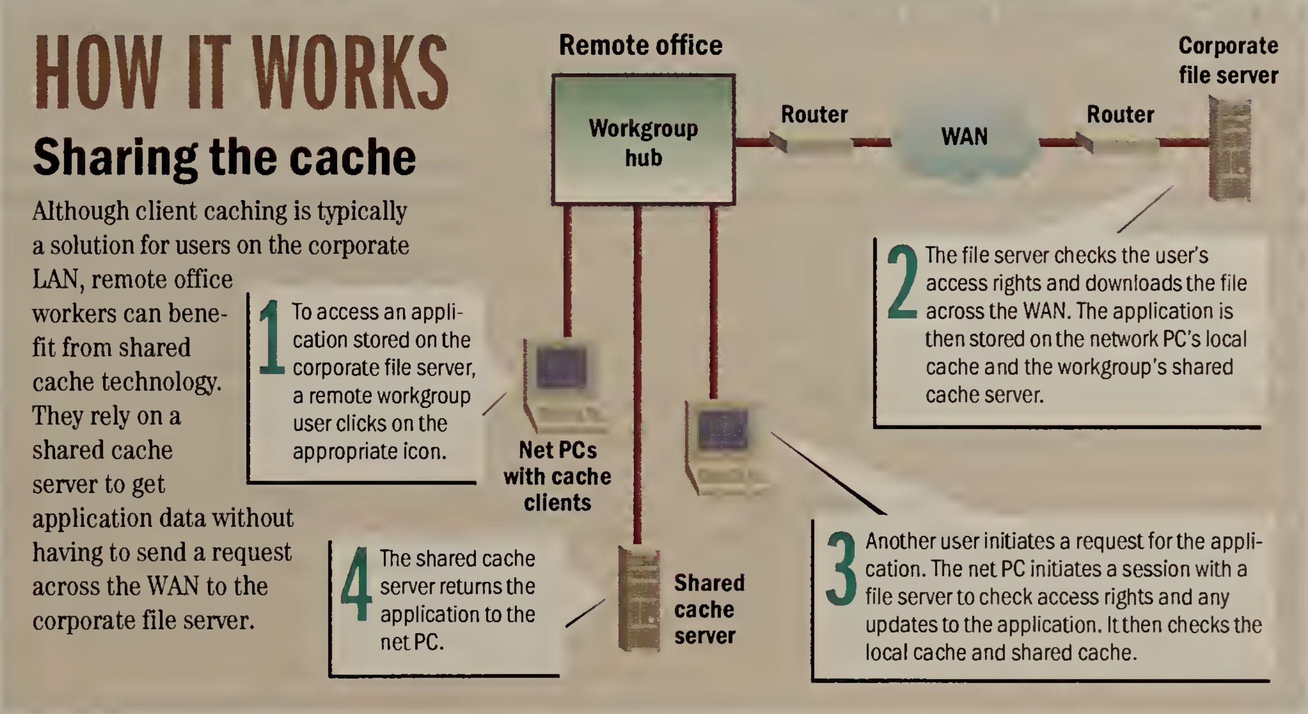
With a shared cache, data is only read once across the WAN and is written into the shared cache, where it is available to all of the net PCs in the workgroup.

The local and shared caches automatically age data in the cache. As new data is written to the cache, and the cache client fills up, data not recently accessed by the cache client is automatically discarded by the cache server. This process doesn't require any setup or administration.

Once installed, LAN caches enhance productivity by reducing the time it takes for net PC users to load applications and read large files from the network. Caching repeated read requests reduces network load and increases responsiveness for users saving data or reading data for the first time.

With the promise of reduced maintenance costs from net PCs running application software and accessing files over networks, LAN and file server performance issues must be addressed. LAN caching can help keep the traffic flowing.

Battersby is president of Measurement Techniques, Inc., a developer of LAN caching technologies in Stoughton, Mass. He can be reached at cbatters@lancache.com or at www.lancache.com.



HOW IT WORKS

Sharing the cache

Although client caching is typically a solution for users on the corporate LAN, remote office workers can benefit from shared cache technology. They rely on a shared cache server to get application data without having to send a request across the WAN to the corporate file server.

1 To access an application stored on the corporate file server, a remote workgroup user clicks on the appropriate icon.

2 The file server checks the user's access rights and downloads the file across the WAN. The application is then stored on the network PC's local cache and the workgroup's shared cache server.

3 Another user initiates a request for the application. The net PC initiates a session with a file server to check access rights and any updates to the application. It then checks the local cache and shared cache.

4 The shared cache server returns the application to the net PC.

Need Information?

Let *Network World* provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Beth Schultz by phone at (773) 283-0213 or via the Internet at bschultz@nww.com.

EDITORIAL *insights*

It's not a black-and-white situation

Novell President Joe Marengi has plenty to keep him busy these days, what with getting the company focused on the Internet/intranet opportunity and cleaning up the messes left by the people who used to run the company.

One of his biggest challenges is dealing with the perception among some customers that Novell is a legacy systems vendor.

That Novell should have to wrestle with that perception is ironic, given it was the relentless advance of PC LANs, led by Novell, that relegated mainframes and minis to legacy status.

But Novell undertook — and failed at — so many "strategic" initiatives, and announced so many blueprints and plans that many customers stopped listening. Like the Unix vendors who cried "interoperability" and "unity" so many times, Novell left itself vulnerable to the relentless marketing attack of Microsoft and NT.

Now Marengi faces the doubly difficult job of getting Novell back into a position of control over the network industry without further confusing customers by making a lot of noise about what the company's doing.

But Marengi, who spoke to me last week, knows that quiet execution is key to Novell's growth now, and he seems intent on keeping the positioning statements to a minimum and following through on commitments. A highly competitive executive, Marengi is adamant that Novell will win a large share of the NetWare/NT buying decisions, but he realizes that the NT juggernaut won't be stopped. So he's put in place plans and partnerships designed to help Novell sell its directory and other services to the NT world.

It's too early to predict how that strategy will play out, but it makes sense because the operating system choice is not a black-and-white issue for customers. NetWare/IntranetWare, NT and Unix all have different strengths and weaknesses in supporting networks, applications and intranets. They will continue to exist and expand in customer networks — despite the press' proclivity for portraying this as a winner-takes-all battle. (For an outstanding examination of NT vs. Unix, see page 28.)

Marengi will go a long way toward rebuilding customer support if he makes NT interoperability a primary plank in Novell's platform. Another key is choosing a chief executive officer soon. Marengi says the search is on track and adds that Novell won't rush the process just to make news. But the company should act before customers start wondering whether Novell is committed to the search or can't convince any high-profile candidates to take the job.

When you can't make a lot of noise, picking a confident, respected leader is a vital step in rebuilding confidence.

John Gallant, editor in chief jgallant@nww.com

Telecom regulation • Brian Moir

Breaking down Bell barriers to local competition

When Congress passed the Telecommunications Act of 1996 last February, we were told we'd see meaningful nationwide competition for local telephone service, state-of-the-art services and lower rates. Yet in the time since the law's enactment, there's been a lot of talk and few results.

Recent events — instigated by the Baby Bells and GTE Corp. — are sculpting a perilous future for American business: a have and have-not local telephone market where the promise of fair competition may not be fulfilled from state to state. If this happens, businesses — and subsequently individual state economies — will suffer as the nation becomes a patchwork quilt of states with and without thriving local telephone competition.

Last August, the Federal Communications Commission issued guidelines establishing how monopoly local telephone companies should allow competitors to connect to their networks. But court decisions have enabled the Bells and GTE to delay an important provision of the FCC's national guidelines for competition — potentially delaying the initial offering of meaningful alternative services until the end of this year or later.

With the FCC rules in limbo, states have no baseline for setting competitive policies and pricing. Some state regulators will enact reasonable pricing and policies that invite competition; others may maintain inflated rates and pro-monopoly policies. The resulting mix of local telephone competition haves and have-nots will create great uncertainty for American business.

There are many potential competitors waiting for favorable regulatory decisions and good-faith negotiations to give them the opportunity to offer local service at fair rates. But they are being stifled by monopoly efforts to block competition and keep access fees at inflated levels that make competition financially unattractive and unfeasible.

Altogether, long-distance companies will pay the Bells about $25 billion in access fees this year. Actual connection costs are most likely less than the $5 billion in fees that subsidize universal service, bringing nice profits to the monopolists. This is money worth blocking competition for if you're a telephone monopoly, but it's making consumers pay nearly $12 billion to $15 billion more than they should for long-distance phone service every year.

Worse yet, these ratepayer-funded subsidiaries could be used to underwrite significant portions of Bell entry into the long-distance market, undermining the competition that now exists in that market. Ameritech Corp.'s recent request for permission to enter the long-distance market makes this a real possibility — particularly because the FCC will be required to make a decision on Ameritech's request before the commission is likely to put new access fee rules into effect.

Unfortunately, blocking competition is business as usual for the telephone monopolies, which are working hard to maintain their captive customers and billions in inflated subsidies. Until every state public service commission takes pro-competition action, the monopolies give up the fight, or national rules for competition are fully reinstated by the court, local telephone service competition faces a Balkanized future.

Congress and President Clinton enacted a law that was supposed to deliver lower rates, technological advances and better service in the local telephone market.

Without national guidelines and monopoly cooperation, the have and have-not future could become a reality. For U.S. businesses, this could mean losing thousands of dollars.

Everyone — consumers, businesses and government at all levels — must demand that local markets be free of the monopoly grip of the Bells and GTE. There's too much at stake to sit back and watch the benefits of competition slip through our fingers.

Moir is a principal in the Washington, D.C. law firm of Moir & Hardman and represents many large telecommunications users, including the International Communications Association. He can be reached at (202) 331-9852 or via the Internet at brmoir@worldnet.att.net.

MESSAGE QUEUE

Send letters to nwnews@nww.com or John Gallant, editor in chief, Network World, *161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.*

Online, all the time: Part II

In his letter to the editor, Chad Leigh criticizes columnist Kevin Tolly's suggestion that users treat their unlimited Internet service provider accounts like dedicated connections (Dec. 2, 1996, page 38). He uses words like "hogging" and "irresponsible" to make his case.

If an ISP sells services under terms that it cannot support, it is *not* the users — taking advantage of a sweet deal — who are to blame; it is the irresponsible ISP managers.

If some users are gobbling up access, other users will get busy signals. The users who get busy signals generally have the option of switching to an access provider

The Blue View • *Anura Gurugé*

Browsers cause a shift in SNA strategy

If you are in the process of consolidating your parallel data networks into a single, SNA-capable multiprotocol network, stop right now to revisit your expectations and design criteria. Web browser-based access to SNA applications, coupled with a shift toward TCP/IP-centric intranets, may have undermined the SNA-related criteria you have been using for your new network.

From an SNA perspective, browser-based access and intranets are inexorably intertwined. Browser-based access allows enterprises that are still heavily dependent on mission-critical SNA applications to consider using TCP/IP-based intranets without compromising access to mainframe- or AS/400-resident SNA applications.

Vendors such as IBM, Netscape Communications Corp. and Cisco Systems, Inc. are now advocating SNA access via standard Web browsers. Meanwhile, more than 80% of attendees at last September's NetWorld+Interop show in Atlanta indicated they will be actively evaluating intranet technology during the next 12 months. So it's no surprise that both IBM and Cisco are relentlessly promoting the notion of intranets, even for enterprises that rely on traditional mainframes for much of their data processing and storage. IBM's latest announcement centered on attaching Cascade Communications Corp. switches to mainframes to facilitate intranet and Internet access, and Cisco is promoting intranets with its IOS/390 TCP/IP software for mainframes.

With the near-ubiquitous availability of cost-compelling, browser-based access solutions, chances are you will have to provide browser-based access to at least some of your PC-based SNA users. Road warriors, telecommuters and users who do not spend all their time logged on to SNA applications are bound to find browser-based access irresistible. Browser-based access is also the strategic migration path for today's burgeoning population of tn3270 users.

The bottom line here is that, as with PCs and LANs in the past, browser-based access will become an intrinsic facet of SNA-related networking.

As more PC users move to browser-based access, the volume of SNA traffic on the WAN will decrease. This is because browser-based access methods such as tn3270 use TCP/IP protocols between the data center and end-user PCs. Today, at least 50% of the SNA traffic in a typical enterprise network is likely to be flowing to and from remote PCs. The other SNA traffic is usually from native SNA devices such as 3174 control units, AS/400 minicomputers and automated teller machines.

The inevitable proliferation of browser-based access means that two to three years from now much of the WAN SNA traffic will be associated with SNA-specific devices, as opposed to the strategic population of PCs, workstations or network computers. Moreover, the volume of SNA-specific devices is slowly but surely withering. The end result of these trends is that by 1999 most enterprise networks are likely to have less SNA traffic than they have now and more TCP/IP traffic.

As I've noted in the past, RFC 1490, Data Link Switching (DLSw) and Advanced Peer-to-Peer Networking routing can be used to implement next-generation, SNA-capable multiprotocol networks. All three techniques, however, implicitly assume that the new multiprotocol net will be supporting at least 50% SNA traffic. Browser-based access will invalidate this assumption. As a result, you'll have to start investigating solutions that can accommodate more TCP/IP traffic.

Frame relay will continue to be the optimum basis for the new multiprotocol networks, at least for the next few years. RFC 1490 or DLSw will still be used to accommodate the end-to-end SNA traffic from native SNA devices. The lure of APPN will diminish considerably as more PCs stop using native SNA and TCP/IP-centric intranets become the basis for new networks.

IP routing will become more important than ever because the browser-based access traffic will need to be IP-routed. However, frame relay access devices (FRAD) can still be the basis for the next-generation networks. All of today's major FRADs perform IP routing in addition to supporting RFC 1490 and legacy devices.

In some cases, FRADs are likely to be the optimum solution for coping with the shift in SNA traffic patterns. With FRADs, an enterprise can start off using RFC 1490 to support the SNA traffic and then resort to built-in IP routing as the traffic patterns start to shift. This will essentially enable you to change the infrastructure of your network without having to swap out the existing hardware.

SNA is at a crucial crossroads. While its usage will continue to prosper, the volume of WAN SNA traffic is going to precipitously decline. Thus, you should not implement your next-generation network assuming today's levels of SNA traffic. Tomorrow's SNA-capable networks will be heavily TCP/IP-based.

Gurugé is an independent consultant specializing in internetworking and IBM network architectures. He can be reached at (603) 878-1303 or via Internet at aguruge@mcimail.com.

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like mine, which sells accounts with "only" 10 hours of access per day (which is plenty for my company's purposes).

If users keep getting busy signals but choose to stay with the offending ISP, then they are to blame for their own misery.

Charles Evans
Fairfax, Va.

In his response to Chad Leigh's comments regarding his column on unlimited ISP access, Kevin Tolly seems to have forgotten that, in the simplest terms, a home office-based corporate worker is no longer using his or her ISP connection as a personal connection, and should, therefore, be utilizing corporate or small business options.

It is irresponsible to encourage misuse of ISP services, especially in print.

Michael May
Support coordinator
TRM, Inc.
Bedford, N.H.

Women's voices missing

How odd that in your article on "The graying of Microsoft" (Dec. 2, 1996, page 1) you interviewed only male executives that are not the primary caretakers of their children.

Bill Gates might have forgotten that some of the people at Microsoft Corp. wanted to spend Mother's Day "with their mothers," but you have forgotten that some of the women at Microsoft (or your readers) *are* mothers.

Heather Quinn
PC technician
The MEDSTAT Group
Boston

By the book

I am curious as to how Connie Sloane Brown determined which books were selected for her review of Certified Novell Engineer (CNE) study guides. Three of the five entries listed are not major players in this arena, and Brown failed to mention three of the biggest.

What of the official Novell study guide from Novell Press (published by IDG Books Worldwide)? What of the books by Sybex, Inc.? What of the dozens of entries addressing this market from New Riders Publishing, which has been putting out CNE study guides longer than any of its competitors and has a full line of products?

Nowhere in the article does Brown mention that she is selectively seeking out minor players in the market, and she misled the audience into believing that these guides are all that are available. The No. 1 product that Brown mentions — from Pisces Press — is available only through Novell Authorized Training Centers, whereas the sizable retail market was completely overlooked.

Emmett Dulaney
Publishing manager
Que Education and Training
Indianapolis

Brown replies: Several companies were contacted for this evaluation. Those included in the article were the ones that responded to our request and met our deadline.

Teletoons

Nooo, mom... we're not playing telephone... we're playing voice over IP... except now we're looking for some lost packets!
Phil Frank

By Phil Frank and Joe Troise baba@sfgate.com

Feature

NT vs. Unix

NT has its place in the workgroup, but Unix wins the battle for high-end, enterprise applications.

By Charles Bruno

If migrating strategic high-end business applications to Microsoft Corp.'s Windows NT Server is high on your list of New Year's resolutions for 1997, do yourself a favor: Make this the first one you break.

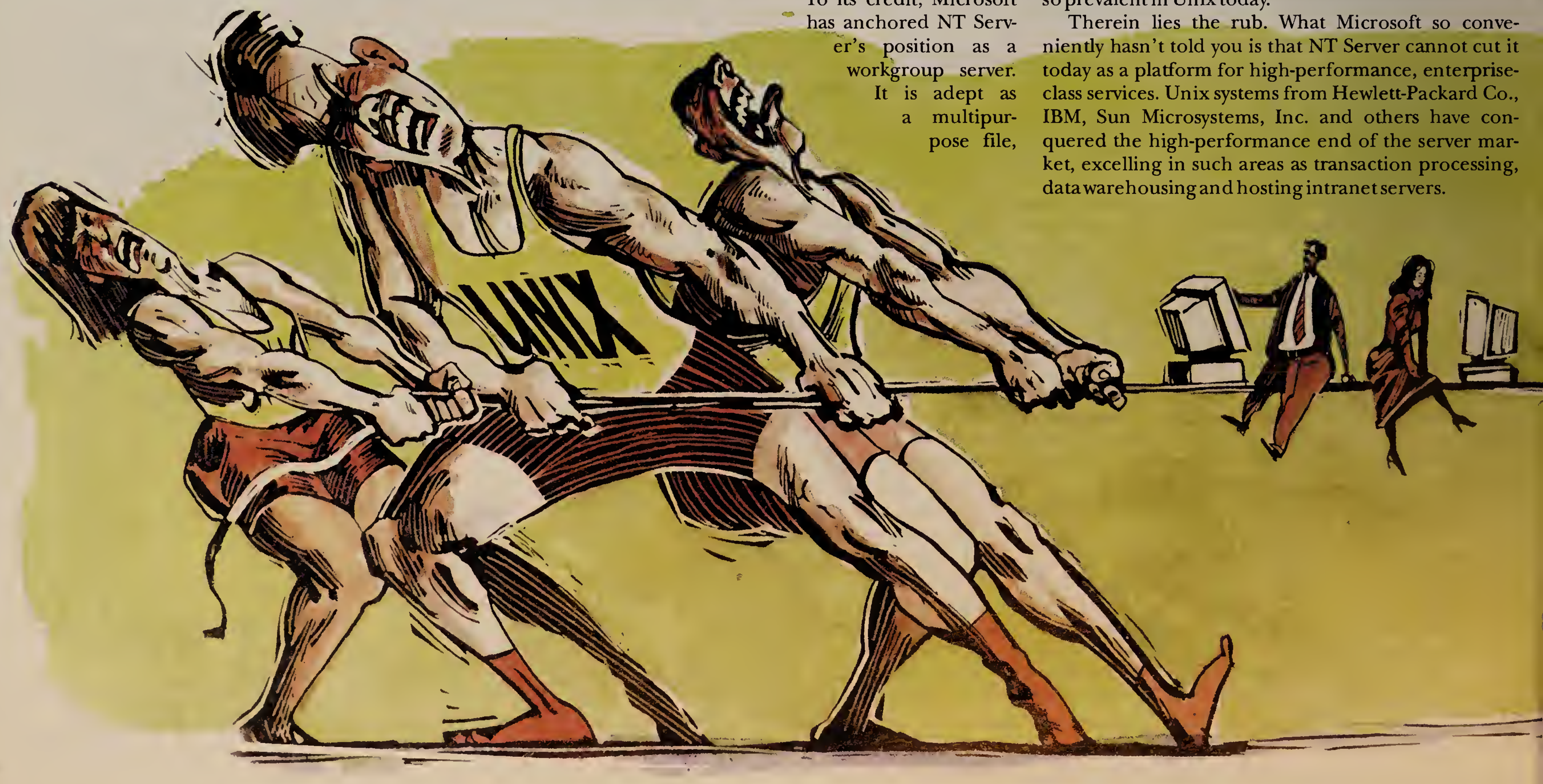
Odd advice? Not really. The economics of NT Server have driven organizations to embrace the operating system en masse over the past two years, but it continues to lag Unix in key areas that will impact your ability to support enterprise-level, mission-critical applications. Rather than think about a wholesale migration, experts say you should plan on NT Server playing a role at the lower tiers of your network hierarchy, but let Unix handle the most crucial chores at the top.

"For at least the next 24 months, Unix is still king; that's the bottom line," says Brad Day, vice president and senior analyst with Giga Information Group in Norwell, Mass. You may incur greater up-front and follow-on costs using any of the popular Unix derivatives as a server operating system as compared to NT, but they "deliver the kind of power and reliability you need for enterprise-class services," Day says.

To its credit, Microsoft has anchored NT Server's position as a workgroup server. It is adept as a multipurpose file, print and applications server for small to midsize businesses. Likewise, its low cost makes it a suitable platform for providing access to public Internet services or hosting textual content for a company's Web site.

On the applications server side, if you are planning to replicate an application across several dozen or even several hundred sites, NT Server is your best bet. Likewise, the server operating system can handle some transaction processing applications and databases, but these are limited in size and scope because NT Server sorely lacks the security and the clustering capabilities so prevalent in Unix today.

Therein lies the rub. What Microsoft so conveniently hasn't told you is that NT Server cannot cut it today as a platform for high-performance, enterprise-class services. Unix systems from Hewlett-Packard Co., IBM, Sun Microsystems, Inc. and others have conquered the high-performance end of the server market, excelling in such areas as transaction processing, data warehousing and hosting intranet servers.



But demand for Microsoft's server operating system is certainly at a fevered pitch. Market researcher International Data Corp. (IDC) projects that NT Server licenses almost doubled in 1996, to about 720,000, surpassing Unix licenses in the process.

"Just because NT Server is doing well doesn't mean all Unix servers will fall over and die," says Jean Bozeman, research manager for Unix and client/server operating environments in IDC's San Jose, Calif., office. "Unix performs very well as an applications, Internet and database server. There are just different sweet spots for these OSes."

That is indeed the case, and it has vendors in both camps trying to invade the others' turf. Microsoft and business partners such as Compaq Computer Corp. and Digital Equipment Corp. are collaborating to outfit NT Server with higher performance facilities and much-needed clustering capabilities. Meanwhile, Sun, IBM and HP are each moving to buck up their Unix offerings for workgroup settings (see story, page 30).

Database dilemma?

In the meantime, customers are figuring out on their own what works best where.

Sid Dhanoa certainly has no regrets about moving the New York Racing Association's (NYRA) accounting database to SQL Server running on top of NT Server. The director of information systems for the Queens organization, Dhanoa has been running SQL Server since last April.

NYRA moved to NT Server after considering Unix, which it already uses for other applications. But third-party software pricing and the ease of use of NT Server cinched the decision.

Windows clients cost about $30 per seat, and SQL Server is priced at about $80 per client, Dhanoa says. The prospect of paying $695 per user license for a Unidata Corp. racing administration program for IBM's AIX just didn't make sense compared to the economics of NT Server. "SQL Server does nothing less for us than I could do with a big relational Unix database," he says. "So why would I want to pay that kind of money for the Unix solution?"

The answer, analysts say, is because NT Server has its limits. Most users have embraced a three-tier database hierarchy where NT Server plays well in two sectors, according to Giga's Day. While Unix has a stranglehold on the enterprisewide data warehouse or repository, NT Server owns the first-tier client desktops and has taken over the mid-tier where applications logic is processed into requests that tap into the repository.

This crucial mid-tier is where most application development work occurs. "Most user shops will tell you they want the second tier to be NT Server to create better cost efficiencies with their staffs," Day says. IS units want to preserve their costly Unix programmers to focus largely on fine-tuning and maintaining repositories. And they'll cross-train some Unix engineers to handle NT Server administration, too. That's more palatable than incurring expenses for separate support staffs.

Unix, meanwhile, continues to hold its own at the data repository level. Unix typically handles data warehouse applications that require more than 50G bytes of memory and a few terabytes of storage. "To do that kind of complex data warehousing, you need massive amounts of memory," according to Nancy Epple, vice president of Enterprise Solutions at Digital Equipment Corp. in Maynard, Mass. However, she says, until Microsoft serves up a 64-bit version of NT Server, it will not be able to compete effectively for that business.

A 64-bit version of NT Server will give users the kind of power they need for high-end data warehouse applications. But Microsoft is working in other areas, too, to bulk up NT Server at the high end.

PRICE ISN'T EVERYTHING

While numbers in this first-year cost-of-ownership analysis paint a convincing picture for moving to NT Server, analysts warn against getting caught up in an economic review at the expense of matching an operating system to the application needs of your business.

	NT Server	Unix
Hidden costs (training and vendor management)	$973,324	$973,324
Management	$616,211	$3,954,504
Downtime (estimated)	$404,133	$404,133
Operations	$375,204	$690,575
Hardware/software components	$252,520	$642,830
Other	$600	$600
Total cost of ownership	**$2,621,992**	**$6,665,966**
Savings with NT Server	**$4,043,974**	

Calculations are based on a single-server network with 500 Windows 95 clients. Interpose's software bases calculations on market data supplied by IDC in Framingham, Mass.

SOURCE: INTERPOSE, ALTAMONTE SPRINGS, FLA.

Microsoft, Compaq and Digital are teaming on a project code-named Wolfpack to bring high availability and clustering to NT Server within the next 15 to 24 months. Initially, Wolfpack will provide server availability extensions to a set of Microsoft APIs that allow two Intel Corp. servers to provide hot backup to each other as they handle their own processing loads. Further down the road, the Wolfpack collaborators will push out high-speed cluster technology to allow for scalability among several Intel-based servers. This will support not only failover backup among the servers, but also automatic workload balancing.

Trio of needs

"Clustering, transaction servers and message queuing are definite requirements to move into that class of server applications," concedes Jeff Price, Microsoft's product manager for NT Server.

While Wolfpack will address the clustering need, Microsoft already has made some headway with its transaction server. Just last month, the company shipped Transaction Server 1.0, which lets you build distributed applications that rely on multiple components to process requests. Transaction Server's role is to coordinate the server-side pool of components necessary to serve the client request.

On the message queuing side, Microsoft is working on Falcon, a project aimed at enabling NT to guarantee delivery of a transaction or notify a remote server of nondelivery. Message queuing is necessary for applications that communicate over a WAN, Price says.

Microsoft has floated prerelease versions of the product to users but has not specified when Falcon will be generally available.

Microsoft may have its work cut out in positioning NT as a credible high-end competitor to Unix in the applications space, but it has fared well positioning the

EDS' *Wayne Stein says GM will install NT Server at some 9,400 sites, but they will connect to Unix hosts.*

operating system as a platform for Internet servers — at least at the departmental and workgroup levels.

Microsoft's bundling of Internet Information Server (IIS), along with its FrontPage Web authoring tool, provides "a staggering amount of software that you'd otherwise have to turn to Java programming with Unix," says Mark Menasi, president of TechTeach International and author of *Mastering Windows NT Server.*

One benefit of NT Server as an Internet platform is that it offers greater ease of use than Unix systems, says Ram Tackett, an analyst with Currid & Co. consultancy in Houston. "It's almost to the point where you can push out administration to the workgroups," Tackett says. Moreover, SQL Server comes with a Web Wizard feature that lets you define database sections to be published at predefined intervals or whenever data elements change. The feature lets you automatically update product listings without having someone knowledgeable in HTML or Common Gateway Interface scripts.

In response to Microsoft's bundling of layered Internet services into NT Server, Sun last month said it is packaging its own Web server capabilities into its Solaris operating system. "Our intent is to make the Web capability a generic piece of every server," says Brian Croll, director of marketing for Sun's Solaris Servers business unit.

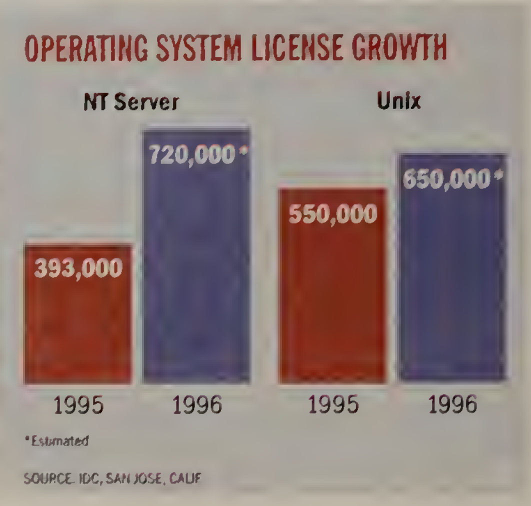
More to the point, Sun — plus Unix vendors including IBM — is targeting the Internet as its best hope of leveling the playing field against Microsoft and NT Server. By bundling in Web services with Solaris, Sun intends to direct users toward using its JavaStation thin clients as graphical front ends to Unix servers that do the bulk of the processing chores.

"When you move to a thin client, you gain on the cost of ownership for the desktop," Croll says. Plus, you gain control over software distribution and centralization of device management, he says, both of which result in operating economies.

Some analysts, however, remain skeptical that the Sun-Oracle-Netscape network computer (NC) concept will deliver the overall cost savings they promise. "What Sun and other thin client advocates ignore are the server costs," says Joe Barkan, research director of platforms and operating system technologies at the Gartner Group, Inc. consultancy in Stamford, Conn. You may have 400 to 500 clients attached to NetWare or NT Server back ends, but in a JavaStation or NC station world, "you might be able to support 100 users per server" due to the extra processing load servers take on. "That means you may be saving on clients, but you're spending more on extra servers to handle the loads," Barkan says.

One area in which Solaris and other Unix derivatives will prevail is intranet servers, says Giga's Day. Unix systems are ideally suited for intranets because they offer greater availability for mission-critical data, are capable of supporting immense databases and have better security than NT Server, Day says.

Ultimately, from a cost-of-ownership position, NT Server wins out over Unix systems, analysts agree. "The common hardware and broad availability from server vendors means the prices are lower than Unix hardware," Microsoft's Price says. In addition, the bundled Internet services in IIS means less outlay for layered options, and the commonality of NT Server with Windows means you don't need to staff up with expensive technical staffers. "If you have someone who knows Visual Basic, you have a server applications developer," Price says.



SOURCE: IDC, SAN JOSE, CALIF.

Increasingly, analysts are suggestin that users may employ a dual operatin system approach for Internet servers: N Server to provide end users with access t the Internet, and Unix systems to contr access to in-house intranet services. A least, that's the tack they'll have to ta until Microsoft can buck up NT Server i the clustering and high-availability se tors to adequately handle those applic tions.

Application servers

Microsoft may wind up slugging it o with Unix vendors for Internet serv business, but it appears to have wrapp up the applications server business fai well. General Motors Corp. is a goo example.

This past summer, the automoti giant handed Microsoft a mammo order to install NT Server on servers 8,500 GM dealer sites in the U.S. and 9 in Canada. The servers will preside as t foundation for the GM Access program a new dealership automation progra that will enable the flow of real-time inf mation between distributed dealers a the auto giant's Detroit-area offices.

Each dealer site will have a replicat version of communications tools a common NT Server applications.

The replicated nature of the enviro ment represents what analysts say N Server is best designed for: workgro applications that must be rolled out o wide scope.

"We had to design a platform th would allow us to do things in a very economic fashion in an environment that's

---

Unix camp girds for NT battle

As Microsoft Corp. and its partners work feverishly to beef up NT Server with high availability and clustering capabilities to better compete with Unix at the high end, Unix vendors are looking to pressure Microsoft in NT Server's stronghold.

Hewlett-Packard Co., IBM and Sun Microsystems, Inc. are moving in slightly different directions: HP and IBM have settled on the idea of achieving coexistence with NT Server, while Sun is more adamant about meeting the competition head-on.

Sun has devised a workgroup strategy where it pitches its Solaris operating system as an Internet/intranet server that relies heavily on a Web-based graphical interface.

"We have a good opportunity there," says Brian Croll, director of marketing for Solaris servers. "It's a fundamental change in philosophy and an easier sell because Sun excels at the Internet."

Since the Internet has been in vogue, Sun has scrambled to recast its workgroup strategy. In December, the company packaged a Web server as a standard component of Solaris — essentially a catch-up move to NT Server and Internet Information Server. And the company is shifting its product documentation and software distribution onto the World-Wide Web, making the Internet the centerpiece of its Solaris effort.

Sun also hopes the advent of thin client Java workstations will enable it to better compete on a cost-of-ownership basis with NT Server. "You can start centralizing management and software distribution, so you gain efficiencies there in addition to lower cost desktops," Croll says.

HP's plan is predicated on coexistence and integration. "Our strategy is to grow the NT business alongside the Unix business," says Dan Beringer, marketing manager for HP's Unix software products.

The vendor has attempted to scope out distinct market segments where NT Server plays well and others where Unix excels. For instance, it steers customers to Unix for security, high availability and clustering applications.

HP's *Beringer is preaching coexistence.*

HP also is moving its Unix and NT Server hardware platforms to a common chipset called Merced, so Unix and NT Server can reside on the same type of hardware.

According to Beringer, Unix prevails in some instances because it has a richer set of utilities, and HP can provide more efficient security with its Presidium authorization server. The device serves as a central point to manage access control lists (ACL). The setup is an advantage over PC systems that support ACLs on a per-server basis. "You end up with a proliferation of ACLs through the enterprise," Beringer says. If one person quits, you have to delete that person's access rights on each server.

Like HP, IBM is embracing NT Server and has definitive ideas for where it will fit. "The majority of NT Server revenue in 1997 will be at the desktop or the workgroup server level," says Robert Henson, IBM's program manager for AIX.

And, like Sun, IBM is pegging its cost of ownership hopes partially on JavaStations. The Java environment is "very, very attractive to us because of the real cost savings of that configuration," Henson says.

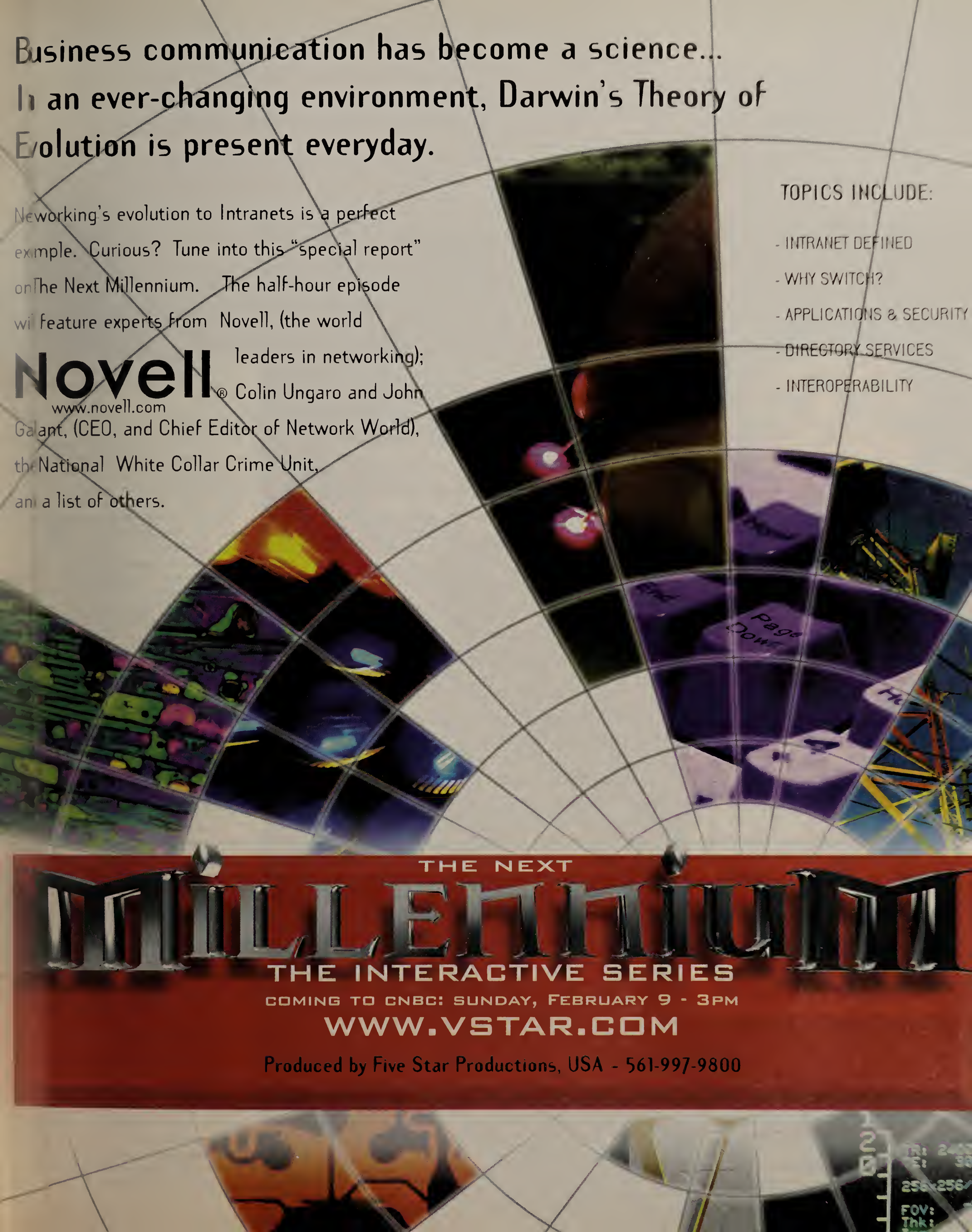
IBM also is working to improve the usability and installation of AIX. "We recognize we still have a ways t go at all levels of configuration," Henson says. Improving interoperability and interconnectivity between AI and NT Server systems is likewise high on IBM's list.

Earlier this year, the computer maker took a step toward making AIX more palatable from a licensing standpoint: The vendor now licenses AIX on par with PC software licenses, making them transferable across machines, according to Henson.

And on the database side, in mid-1996 IBM brought down the price of its DB2 database for AIX to that of th NT Server version. "We didn't want to penalize custo ers for making a Unix decision," says Jeff Jones, program manager for data management marketing at IBM's Software Solutions Division in Santa Teresa, Calif. That, and the company didn't want NT Server to cannibalize AIX sales.

IBM last month unveiled DB2 Universal database, a Web-enabled version of its popular database engine that offers built-in Java support and runs on Unix or Intel class servers. At $999, it's sure to get a few looks.

— *Charles Bru*



Business communication has become a science... In an ever-changing environment, Darwin's Theory of Evolution is present everyday.

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not used to high-grade technology," says Wayne Stein, project manager for GM Access at Electronic Data Systems Corp.

Here again, though, NT proved to have its limits. GM's NT-based application servers will relay data back to Unix hosts that contain strategic data repositories.

Russ McBrien, a program manager for HP's Professional Services Organization consulting group, says the decision to use NT Server as an application platform depends on the nature of the application.

"If you're just replicating the same application over a few hundred sites, NT Server is the way to go," McBrien says. "If you have mission-critical applications, stick with Unix."

Donald Goss, technology services manager with NationsBanc Services Co., a Norfolk, Va., unit of the giant banking conglomerate, is a self-proclaimed NT Server bigot. Nonetheless, he agrees with McBrien.

"The main reason is just the processing power of Unix," he says. "You're dealing with 2,500 desktops at NationsBank trying to access the database at one time, then you're looking at a Sun SPARC 6000." To handle the same load with NT Server, Goss says you'd need several Pentium-class machines.

The other determining factor that swings in favor of using Unix is the need for applications scalability, says George Weiss, a vice president and research director in the Distributed Computing Platforms unit at Gartner Group.

Some transaction processing applications may run fine on NT Server, but others require the clustering and high availability common on the database side, he says.

Once Microsoft delivers a 64-bit version of NT server — perhaps by year-end — Weiss says, that mitigating factor will evaporate and both NT Server and Unix should operate on a more level field, albeit with some retooling required to prep applications for the new version of NT Server.

Which way to go?

If you've already resolved to move strategic applications to NT server this year, consider first whether the economic advantages outstrip the need for availability and high-performance systems.

If your applications are highly distributed and they share files, NT Server is likely a solid choice. Likewise, if you're providing Internet access to the masses in your organization, go with NT Server. On the database side, NT server may well be the answer — provided you don't need it to scale beyond 50G bytes within the next two years.

Learn how GM is using a mix of Windows NT and Unix to give more than 9,000 car dealers powerful sales support and communications tools.

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Go with Unix when your application needs dictate high availability and scaling into the gigabit and terabit range. If you need a highly reliable Internet/intranet server with solid security, then Unix is the better choice.

And from an applications server perspective, again, consider the need for high reliability.

If cost of ownership is your chief concern, chances are NT Server will prevail in the near term — at least until Sun and others establish the NC and JavaStations and produce hard evidence of the cost efficiencies they promise.

Hardware costs lean in favor of NT Server, as does training, management and licensing costs.

So, from a cost-of-ownership perspective, NT Server seems the clear choice. But if your network applications require high availability and raw processing power, cost of ownership isn't the real issue. Keeping your customer base up and satisfied is what it's all about. ■

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NetworkWorld PC WORLD

SERVER TEST SERIES

A monthly feature in which we evaluate file and application servers based on tests conducted in a lab owned jointly with our sister publication, PC World.

Ring in the new benchmarks

By William Rinko-Gay

With this happy new year, we're happy to announce a new version of our PC WorldBench for Servers. Version 2.0 uses Novell, Inc.'s IntranetWare 4.11, Microsoft Corp.'s Windows NT Server 4.0, Lotus Development Corp.'s Notes 4.1 and Oracle Corp.'s Server 7.3. As a result, the performance numbers for this version of the benchmark are not directly comparable with last year's figures.

Along with these software upgrades, we've added computers to our test lab so we can stress enterprise servers with 32 clients. This month, however, we're looking only at workgroup servers.

We've also included a Web server test that uses Netscape Communications Corp.'s Netscape Enterprise Server 2.0 under Windows NT and Novell's Web Server 2.51 under NetWare. We tested the presentation of several HTML pages containing text and graphics within the Netscape Navigator Gold 2.02 browser on our clients. With Windows NT, we also used Open Text Corp.'s Livelink Search Version 7.0 to search a 1G-byte database of documents.

Although we still perform Notes tests, we've stopped reporting the results because they seem to track fairly closely with the results of our file server tests.

If you want the exact numbers, you can download spreadsheets with complete results from Network World Fusion.

As with all our tests, we measured results in scripts per minute, where a higher score indicates a better performer.

Copies of the benchmark will be available for distribution in a few months. If you would like to receive a copy, send your request via E-mail and include your name and postal address to bill_rinko-gay@pcworld.com.

Workgroup wonderland

This month, we asked server vendors to give us their best single-processor workgroup server with 64M bytes of RAM priced less than $6,000 (estimated street price).

We gave the vendors the options of minimizing cost or adding hardware within the price ceiling.

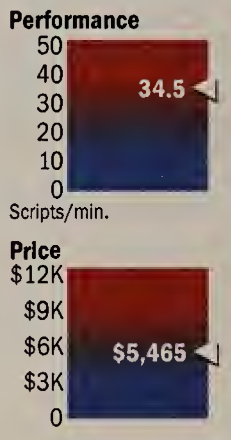
Hewlett-Packard Co.'s NetServer LD Pro and Compaq Computer Corp.'s ProLiant 800, both making their public debut in these pages, provided first-rate features, and Compaq blew away all comers in performance. Micron Electronics, Inc., long revered for its desktop PC line, provided a solid VETIX EL 1000 server with entry-level features and mid-level performance.

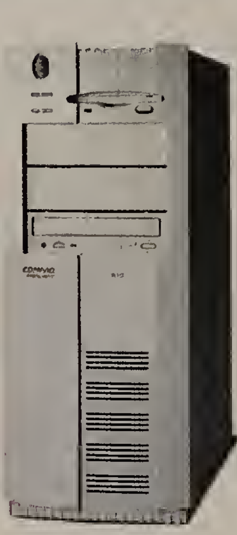
Pony Computer, Inc.'s Devron Pro EX210, at the low end of the scale, looked and performed like a standard PC pressed into duty as a server.

ProLiant 800

Vendor:
Compaq Computer Corp.

Contact:
(800) 345-1518
www.compaq.com/productinfo/systems/spd





Compaq's ProLiant 800 is a stunning low-cost workgroup server, from its intelligent design to its stellar performance. At $5,465, this machine is all Compaq but at a price that should make IS managers happy.

The ProLiant was by far the fastest server of this, our initial month of testing with our updated benchmarks. It's also a joy to install, manage and service.

To begin with, there is Compaq SmartStart, a bootable CD-ROM that installs the operating system for you or any of several add-ons, such as Oracle Server. The CD-ROM also provides programs for diagnostics and system setup, and documentation. In the event you can't access the CD-ROM, try the printed documentation, which is more detailed than we've seen from Compaq in the past. If you need to upgrade your system, Compaq's Software Support diskette makes it easy to tell which drivers need the upgrade.

The server comes with the Integrated Remote Console, a feature that allows you to reset the server, cycle power and view a complete boot sequence from another system via modem. In addition, integrated server restart logic lets you automatically log the problem and restart your server in the event of an unexpected shutdown.

The chassis is essentially a typical minitower on the outside. We were a little confused by the placement of the keyboard and mouse icons next to the ports on the back; we installed the two devices incorrectly more than once. Three thumbscrews remove a side panel and unveil where the differences between the ProLiant 800 and other workgroup servers really begin.

The PCI and ISA adapter bus is mounted on a daughter card, which can be removed with a single pull, without unplugging the monitor and network connectors. Once the daughter card is removed, the only connection to the rest of the computer is a cable between the integrated SCSI adapter and the hard drives. You can then easily replace option cards, such as a modem or the video adapter, and the entire system board is available for servicing. There are two zero insertion force (ZIF) sockets for Pentium Pro processors, with a removable power regulator for each.

Compaq Computer Corp. **ProLiant 800**

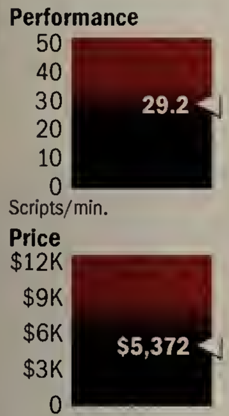
OVERALL SCORE	**7.9**
Performance **(40%)**	8
Features and flexibility **(40%)**	8
Management apps/features **(10%)**	8
Serviceability **(10%)**	7

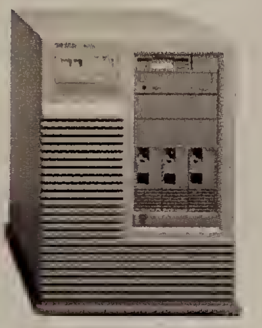
Our only serviceability complaint is that the hard drives are mounted using Torx T-10 screws. We've become so used to being able to remove drives without the need for tools that requiring a tool, and an unusual one at that, seems a poor choice for an otherwise premium system. ProLiant 800's features and performance clearly make it an outstanding value. With the option to upgrade to two processors, this is our new low-cost workgroup server of choice.

NetServer LD Pro

Vendor: Hewlett-Packard Co.

Contact: (415) 857-1501
hpcc997.external.hp.com:80/netserver/home.html





To reach out to the entry-level workgroup server market, HP had to cut costs on its respected enterprise server line. By removing some of the expandability features found in other NetServers and using a less expensive CPU, HP hit a home run with the NetServer LD Pro, a speedy server that doesn't skimp on enterprise-level management features. With an estimated street price of $5,372, this is one entry-level server that could make anyone happy.

Hewlett-Packard Co. **NetServer LD Pro**	
OVERALL SCORE	**7.6**
Performance **(40%)**	7
Features and flexibility **(40%)**	8
Management apps/features **(10%)**	8
Serviceability **(10%)**	8

The LD Pro was a strong second to the Compaq ProLiant 800 in almost every test. Only on the NetWare Web server test and the NT database test did the LD Pro place third.

Though sporting only a 180-MHz Pentium Pro processor, the LD Pro uses multiple disk drives and an advanced PCI bus architecture that makes the 33-MHz bus speed independent of the processor speed.

The LD Pro is housed in a slightly smaller chassis than the LH Pro we reviewed in the Oct. 28, 1996 issue. It has only three hot-swappable drives and six expansion slots: two EISA and four PCI. In addition, HP integrates only one Adaptec Corp. 7880P SCSI controller. On the other hand, the chassis can accept a second Pentium Pro processor.

This machine is easy to support. A single chassis lock keeps intruders from removing the drives. Under the cover is a handy configuration chart and a system-board layout. The cover is large but held on with thumbscrews that make it easy to remove.

The system board is housed on the right half of the chassis, and the drive backplane is on the left. Dual in-line memory modules (DIMM) and processors are on a separate board, and are easy to change without removing the board. HP says upgrading to two processors requires a board-level upgrade to make it easier to upgrade to future processor technologies. While we agree with this logic in upgrading to a new version of the x86 processor, we don't see the need for a card upgrade to add a second CPU.

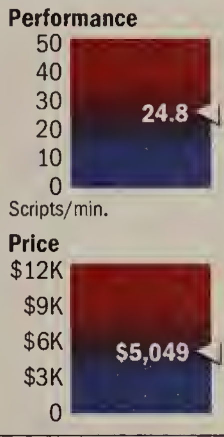
The documentation we looked at was prerelease, as was bundled software. HP built in full support for the network management features that make the NetServer line what it is: NetServer Assistant, to provide configuration and NOS installation help; Information Assistant, which gives you all the information you need to maintain your NetServer; and Diagnostic Assistant, to help with troubleshooting.

While HP doesn't include any encrypted NOS for you to install, the Information Assistant provides instructions on how to install your own copy, including help with selecting the right drivers for your hardware.

VETIX EL 1000

Vendor:
Micron Electronics, Inc.

Contact:
(888) 634-8799
www.mei.micron.com/showroom.html



Micron Electronics has a reputation for speed and quality in the desktop arena. The introduction of the VETIX workgroup servers breaks new ground for the PC firm. Like its client PCs, this server is short on innovative technologies but has some of the best bundled options available.

Micron Electronics, Inc. **VETIX EL 1000**	
OVERALL SCORE	**6.0**
Performance **(40%)**	6
Features and flexibility **(40%)**	7
Management apps/features **(10%)**	1
Serviceability **(10%)**	7

This oversized tower came with two disk drives. Micron installed one NOS on each drive for us; had they not, the two drives could be a striped volume. Micron also chose to install an Ultra-SCSI Seagate Technology drive on the Wide Ultra-SCSI adapter, cutting the potential data transfer speed in half. These two configuration choices impaired the EL 1000's overall performance, which was good to average.

The EL 1000 provides five external drive bays and three empty internal bays for serious storage expandability. This makes the lack of card and memory expandability surprising. Only one shared slot and one ISA slot were available, partly because Micron uses adapter cards for video and SCSI rather than integrating them on the system board. A maximum memory of 256M bytes seems small, compared with what competitors offer.

Maintenance is reasonably easy. The cover, held on by six screws, is a bit tedious to remove and tricky to replace. But once we removed it, we could access all the drive bays, and processor and DIMM sockets.

The peripherals are all first class. A 3Com Corp. 3c905 Fast Ethernet adapter, an Adaptec AHA-2940 Ultra-Wide SCSI adapter, a Number Nine Visual Technology, Inc. 9FX Motion 331 with 1M byte of video RAM (upgradable to 2M), and a Plextor Corp. 12x SCSI CD-ROM show Micron's PC heritage and excellent OEM relationships. Micron doesn't provide management software but includes all third-party maintenance options from Digital Equipment Corp.

For an estimated $5,049 street price, Micron delivers a reasonably powerful workgroup server. Simple performance enhancements and some server management software might make the VETIX EL 1000 an excellent entry-level server. But the lack of expandability makes it a poor choice as a starting point if you plan to grow significantly.

Download complete server test results and more details about our test methodology.

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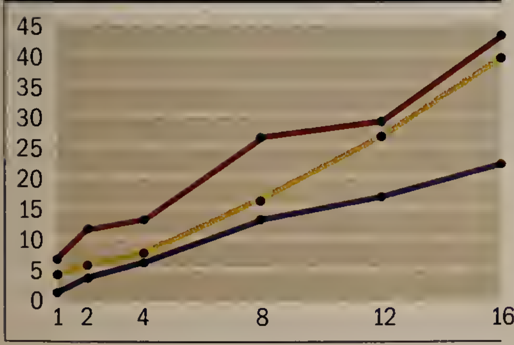
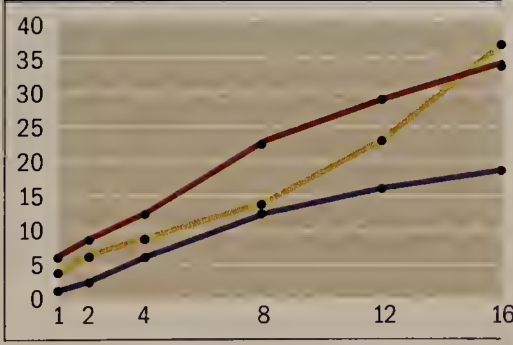
PERFORMANCE SUMMARY

We measure performance from the client's point of view and report the time it takes to complete typical tasks. Our performance summary graphs show the results of each test in scripts per minute with numbers of clients ranging from one to 16. Because the tests run faster than a real client could perform the operations, each of our test clients stresses the servers as much as several real users would.

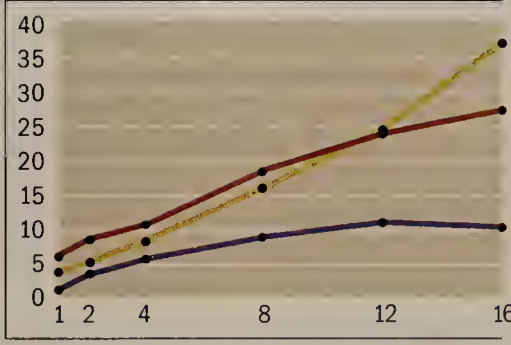
Compaq ProLiant 800



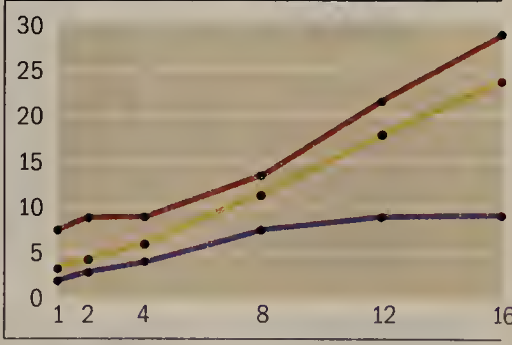
HP NetServer LD Pro



Micron VETIX EL 1000



Pony Devron Pro EX210



FILE SERVER Our file server tests run scripts on ascending numbers of clients for four applications: Microsoft's Word and Excel for Windows, Lotus' 1-2-3 for Windows and Corel's WordPerfect for Windows. The scripts perform file access operations, such as opening, importing and saving files.

DATABASE Our client/server database test uses Microsoft Access on the front end and Oracle Server 7.3 on the back end. We perform various read and write operations on a three-table payroll management application.

WEB SERVER Our Web server test uses Netscape Enterprise Server 2.0 under Windows NT and Novell Web Server 2.51 under NetWare. We view pages containing text and graphics and use Open Text's Livelink Search 7.0 to search a 1G-byte document database.

WORKGROUP SERVERS: THE INSIDE STORY

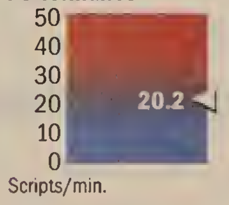
	Compaq Computer Corp.		Hewlett-Packard Co.		Micron Electronics, Inc.		Pony Computer, Inc.	
Model	ProLiant 800		HP NetServer LD Pro		VETIX EL 1000		Devron Pro EX210	
Processor	200-MHz Pentium Pro integrated 256K-byte Level 2 cache		180-MHz Pentium Pro with integrated 256K-byte Level 2 cache		200-MHz Pentium Pro with integrated 512K-byte Level 2 cache		200-MHz Pentium Pro with integrated 256K-byte Level 2 cache	
Max. processors	Dual 200-MHz Pentium Pros with integrated 256K-byte Level 2 cache		Dual 200-MHz Pentium Pros with integrated 256K-byte Level 2 cache (board upgrades)		Dual 200-MHz Pentium Pros with integrated 512K-byte Level 2 cache		As provided	
Memory	**As tested**	**Maximum**	**As tested**	**Maximum**	**As tested**	**Maximum**	**As tested**	**Maximum**
	64M bytes	512M bytes	64M bytes	512M bytes	64M bytes	256M bytes	64M bytes	768M bytes
Slots	**Provided**	**Open**	**Provided**	**Open**	**Provided**	**Open**	**Provided**	**Open**
EISA	0	0	2	0	0	0	0	0
ISA	2	2	0	0	1	0	3	3
Shared	0	0	0	0	1	0	1	1
PCI	5	4	4	0	3	0	3	0
Processor	0	0	0	0	0	0	0	0
Bays	**Provided**	**Open**	**Provided**	**Open**	**Provided**	**Open**	**Provided**	**Open**
Internal	1	0	0	0	5	3	1	0
External	4	0	4	0	5	3	5	2
Hot-plug	0	0	3	2	0	0	0	0
Storage								
Adapter	Symbios Logic 875		Adaptec 7870P		Adaptec AHA-2940UW		Adaptec 2940W	
Bus	Ultra SCSI		Fast Wide SCSI-2		Ultra Wide SCSI		Ultra Wide SCSI	
Capacity	6.3G bytes		12.9G bytes		4.3G bytes		4G bytes	
Model	Seagate Barracuda ST32550W		Seagate ST32550WC		Seagate ST32171N		Quantum XP34300W(Wide SCSI)	
Maximum drive capacity	**Internal**	**External**	**Internal**	**External**	**Internal**	**External**	**Internal**	**External**
	27.3G bytes	34.4G bytes	35G byte	89G bytes	32G bytes		28G bytes	28G bytes
CD-ROM	Sanyo CRD-168PCH 8x IDE		Toshiba XM-5401B 4x SCSI		Plextor PX-12CSi 12x SCSI		Toshiba XM-5401B 4x SCSI	
Network adapter	Compaq NetFlex-3 100Base-TX		HP DeskDirect 10/100 TX PCI		3Com Fast EtherLink XL 10/100 PCI		Kensington EtheRx PCI 10/100	
Fault-tolerance features	Server restart, remote management (with optional modem), ECC memory, optional RAID adapter and optional hot-plug drive bays		Hot-swappable drives, temperature sensor, RAID 5 option and automatic server restart		ECC RAM and optional RAID adapter		Parity memory available, ECC memory available, optional failover cooling fans, heat sensor alarm, optional RAID 5 adapter, redundant power supply and hot-swappable hard-drive bays	
Security features	BIOS passwords, administrator mode, diskette and port locks, and location for cable lock		Start-up password locks, keyboard lock button, power switch lock, EISA configuration protection switch, I/O locks and provision for cable lock		Chassis lock and BIOS password		BIOS password	
Bundled software	Compaq Server Diagnostics, Systems Configuration Utility, Compaq Smart Start, Compaq Insight Manager and agents		NetServer Navigator, NetServer Assistant (server management software), Information Assistant, Diagnostic Assistant and HP Open-View for Windows		Choice of NOS and NetWare customized		Microsoft NT Server 4.0 configured for the customer. Options: Tivoli's TME10 and Seagate tape backup	
Miscellaneous	Toll-free 7x24 support, three year on-site, four-hour option		Toll-free support during standard business hours, three-year, next-business-day on-site and optional services		Toll-free 7x24 support, five-year limited warranty for microprocessor, three-year for other parts and upgrade options		Toll-free 7x24 support; three-year, one-year on-site, optional three-year on-site service; optional installation, various options for speed of on-site service; and 230-watt power supply	

Devron Pro EX210

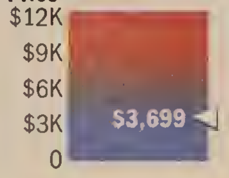
Vendor:
Pony Computer, Inc.

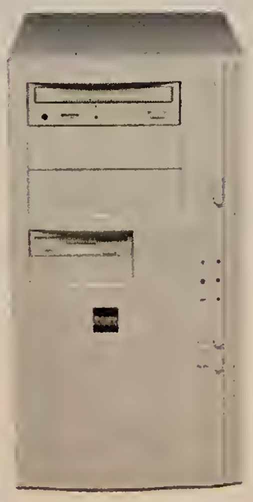
Contact:
(216) 498-4888
www.ponycomputer.com

Performance



Price





Pony Computer seems to invite equestrian metaphors with the Devron Pro EX210. This server is small, with little room for expansion and no management features. And in terms of file and Web server performance, it is indeed more a pony than a thoroughbred. In our file server and Web server tests, the system, with its single Quantum Corp. hard drive (without hot-plug capability), came in dead last.

When you move away from drive-dependent tests, this $3,699 server provides a lot of return on your investment. Thanks to the fast page mode Extended Data-Out RAM and its 200-MHz Pentium Pro processor, it had good NT database and Notes performance.

But price and performance aren't all that matter. Without hot-pluggable drives or remote management software, this machine could spell trouble should anything go wrong. And the limited expandability — one PCI slot and two drive bays as configured — means you have to buy another server to support any reasonable growth.

There's also not much in the way of serviceability. A three-year warranty with the first year on-site is important, as is the 7x24 toll-free phone support for the product.

But when you have to service the unit yourself, you'll find it a bit difficult. The shell, which is held in place by four screws, must be removed to do any maintenance work. Once that's done, the processor and SIMM sockets are easy to reach, but the nest of cables make all other work difficult.

To remove the processor, for example, you have to first remove the fan on top of it because the fan's power cord is in the way and it can't be unplugged. To swap drives, you've got to pull off the front bezel, and the metal tabs holding the bezel in place look like they weren't made to last.

Documentation is sparse and comes with a warning: It's designed for technicians. There was no documentation on the chassis, so you're on your own when it comes to removing that front bezel, for example. Pony supplies the OEM manuals for the system board and BIOS. Manuals and diskettes for the video card, network adapter and SCSI adapter (also from the OEM) finished the documentation picture.

Technically, this is a decent server, and it gets Pony out of the gate in the server market. But the company needs to invest in reliability and management support, and improve the expandability and serviceability of its product before we can give the Devron Pro EX210 a hearty endorsement. ■

Pony Computer, Inc. **Devron Pro EX210**

OVERALL SCORE	**5.1**
Performance **(40%)**	5
Features and flexibility **(40%)**	6
Management apps/features **(10%)**	1
Serviceability **(10%)**	6

IBM

Continued from page 1

technical center. "As the complexity levels of the network go up and the amount of information users have to work with on a daily basis increases, agents will be needed to filter, handle and automate as much work as possible."

The IBM Competence Center's first product, which was just released, is called Web Browser Intelligence (WBI). It runs on Microsoft Corp. Windows 95 or IBM OS/2 Warp clients, and it can automatically test the speed of links between home pages, learn end-user Internet usage patterns, and automatically suggest shortcuts or check and report on favorite Web sites for changes.

As software *assistants, intelligent agents will proliferate by the year 2000 and make life easier for users facing increased complexity, IBM's Janca says.*

But WBI is only the tip of the iceberg. IBM is developing "collaborative agents" that can work together across an enterprise net. The group is also looking at how agents can help Internet firewalls operate more effectively. Forthcoming agents will help intercept, sort and deliver E-mail or workgroup data more efficiently.

IBM is working on a standard architecture called the Agent Building Environment that will let IBM and others develop interoperable agent-based applications. Another IBM effort, called Agent Applets (or Aglets), uses Java technology to build mobile agents capable of being embedded in network applications to help search for, manage and access widely distributed corporate data.

One of the keys to IBM's agent work is the development of smart interfaces that can detect when a user is having difficulty locating information or handling an overpowering workload. These types of interfaces can learn user preferences and automate actions, thereby reducing complexity and eliminating the humdrum tasks that can bog users down, Janca said.

Another key is being able to develop agents that users can deploy with existing applications such as everything from Microsoft Word to DB2 databases. Janca said IBM hopes to accomplish this goal with new "adapter" technology that will let agents automate legacy operations. Adapters are not unlike printer drivers, which can be written to provide a variety of functions to multivendor printing devices.

"It is not a trivial task to extend hooks into large DB2 or CICS applications, but we intend to build adapters for legacy applications that can reach in and monitor events, and help ease the complexity of those environments," Janca said.

The challenge IBM and others face is deciding what information these agents should be looking for, noted Paul Mason, a research manager with International Data Corp. in Framingham, Mass. "Ideally, somebody should figure out how to leave some open hooks in these applications so that users could add functions to them as they needed."

The promise of agents

Another challenge faced by IBM and others is to take software agents beyond the drawing board.

Agents have been touted in the past for being able to handle users' busy work, but customers have failed to embrace the technology. IBM and others say that is about to change.

Desktop applications are becoming so complex that users can only master parts of them; agents can help do the rest, Janca said. Agents also required a lot of power, memory and bandwidth in the past — all three of those items are less expensive and more abundant now, he said.

Janca said agents can help direct communications — without the user's knowledge — in a world where multiple servers, the Internet and service options are the norm. ■

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At one point the transition path looked clear. It seemed widely accepted that ATM would meet bandwidth demands and serve the local and wide area networks of the future. Now, the advent of fast LAN technologies such as switched Ethernet and token ring LANs, along with 100 Mb and soon, Gigabit Ethernet, challenges conventional wisdom. The picture is made more confusing by the existing FDDI technology and belatedly, cost-effective, standards-based ATM.

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Briefs

ReCor Corp. *has added* **NBT for Netscape Navigator 3** *to its line of computer-based training products.*

The 90-minute course covers Internet basics, working with Web pages, search information and Netscape special features. The software requires clients to have at least a 66-MHz 80486 processor running Microsoft Corp.'s Windows 3.1 or 95 and a VGA color monitor.

A free single-user copy that occupies 3.5M bytes of disk space can be downloaded from ReCor's Web site (www.recor-corp.com). Server-based licenses range from $395 for 10 concurrent users to $895 for 100 concurrent users.

ReCor: (800) 467-3304.

ProSoft I-Net Solutions, Inc. *will partner with* **Gartner Group Learning** *to develop and distribute Internet/intranet training courses.*

The courses will be available in versions that run on LANs, the Internet and intranets, and in computer-based training format. The programs will augment ProSoft's classroom training portfolio of more than 50 courses covering a variety of entry-level and advanced Internet technologies.

ProSoft: (800) 261-8552.

Industry group membership has its benefits

By Ian Stokell

Investing time to work with industry groups, even vendor-dominated ones, pays a dividend. Just ask the members of the ATM Forum's user arm, the Enterprise Network Roundtable (ENR).

Even though they couldn't vote on the adoption of technical specifications, ENR members had a tremendous influence on development of the Multi-Protocol Over ATM (MPOA) specification. When the ATM Forum's vendor-only technical committee saw the MPOA specification becoming too cumbersome and taking too long to finish, they invited ENR members to a meeting to iron out the problems.

ENR Chairman Brent Earley of Bell Northern Research says MPOA was rewritten and simplified based on user feedback, resulting in expedited delivery of the final specification.

Influencing specifications for faster delivery is just one reward for participating in industry groups. You also get to rub elbows with experts in specific technologies and establish an ongoing dialogue with vendors.

For example, Earley says ENR members who take part in an ENR Liaison Program are permitted to attend technical committee meetings and contribute to the development of specifications by submitting written reports to the ATM Forum's technical and marketing committees.

Newly formed regional interest groups in the Southwest and Southeast are also providing user feedback to the ATM Forum.

Go online for details on joining the ENR, OURS or the Gigabit Ethernet Alliance.

You'll also find excerpts from several OURS white papers and a story about the lack of user involvement in the World Wide Web Consortium.

FIND IT ON FUSION 0201

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Network World Fusion http://www.nwfusion.com

Another entity with even greater influence is the Open User Recommended Solutions (OURS) group. OURS brings together users, vendors and service providers to focus on broad issues, such as interoperability, and publishes white papers that spell out recommendations for how vendors can better meet user needs.

Ron Shepherd, a vice president at The Chase Manhattan Corp. and co-chairman of OURS' "What Works With What" task force, says white paper topics must be approved by the OURS board, which is dominated by users.

"In the bylaws, the customers hold the edge in the number of representatives on the board — seven customer companies, five vendors and one service provider," he says.

According to Shepherd, OURS members get two main benefits from their involvement: They get to work with industry experts, and they can impress their company's technology needs upon vendors. "We are injecting our needs and specifications into the vendors' product development plans," he says.

OURS members also get the chance to develop standard definitions for technical terms and use them in their white papers. "Translation of terms from one vendor to the next and one customer to the next is difficult at best," Shepherd says. "It is fraught with problems of miscommunication, of misunderstanding terms, and that is expensive on everybody's part."

Even new industry groups, such as the Gigabit Ethernet Alliance, see the benefits in having users actively involved in the development of specifications. While the alliance's 97 member companies are all vendors, the group is opening up to users.

Tony Lee, chairman of the Gigabit Ethernet Alliance, says the group intends to step up its efforts to raise end-user awareness and encourage end-user participation and involvement.

Lee says the alliance seeks this input in the development of standards and product interoperability. "End users' responses to how these technologies should evolve during the standards process would be very helpful," he says. That is a sentiment many vendor-dominated groups are be-ginning to echo.

Offering the input vendors seeks may bring the biggest benefit of all — a product that has exactly what you need.

Stokell is managing editor of Newsbytes News Network, a technology newswire, and a freelance author. He can be reached at Ian_Stokell@newsbytes.com.

Bringing home the benefit

To see how users can benefit by working with vendors in an industry group, look at IBM's revamping of its mainframe software pricing based on an Open User Recommended Solutions (OURS) group white paper.

"We changed a lot of our pricing based on what came out of that OURS licensing paper," says Linda Hubbard, IBM's manager of Software Business Strategy and Operations in North America and an OURS Software Licensing Task Force member.

For instance, IBM started pricing software based more on the value users received from it than on mainframe capacity. Before, machine capacity alone determined cost, which put too high a price tag on some software for the functionality it provided.

— Ian Stokell

MANAGEMENT DATA ONLINE

Network World peruses online services for interesting tools and tips that can make your job easier or help you better manage your career. Here are a few.

Parachute opens online

Fans of the popular career book *What Color is Your Parachute?* will want to know that its author, Richard Bolles, has a Web site devoted to job hunting Internet-style. Hosted by the Washington Post, the Job Hunting Online site features Bolles' advice for how to best browse job listings, post a resume, get career counseling, make contacts and research potential employers.

Bolles also shares his Parachute Picks — links that drop you safely into what he considers the most useful career-related Web sites.

In addition, there is a discussion area where you can post questions to Bolles.

Use Network World Fusion as your launching pad to the World-Wide Web sites mentioned in this article.

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Support locator

When you quickly need to reach a vendor's support or service organization, you just might find the phone number on the SupportHelp.com site. Technical support and customer service phone numbers, along with E-mail, Web site and snail mail addresses for more than 2,500 vendors, are maintained on this site.

You can search for a specific company or get an alphabetical listing of firms. A number of vendor listings indicate the last time contact information was verified and give you an idea of how quickly you can connect to the vendor's Web site.

There are also links to more than two dozen Usenet newsgroups that have discussion threads dedicated to service and support issues.

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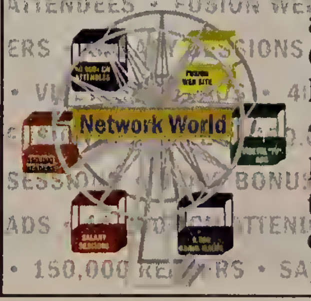

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245	246	247	248	249	250	251
252	253	254	255	256	257	258
259	260	261	262	263	264	265
266	267	268	269	270	271	272
273	274	275	276	277	278	279
280	281	282	283	284	285	286
287	288	289	290	291	292	293
294	295	296	297	298	299	300
301	302	303	304	305	306	307
308	309	310	311	312	313	314

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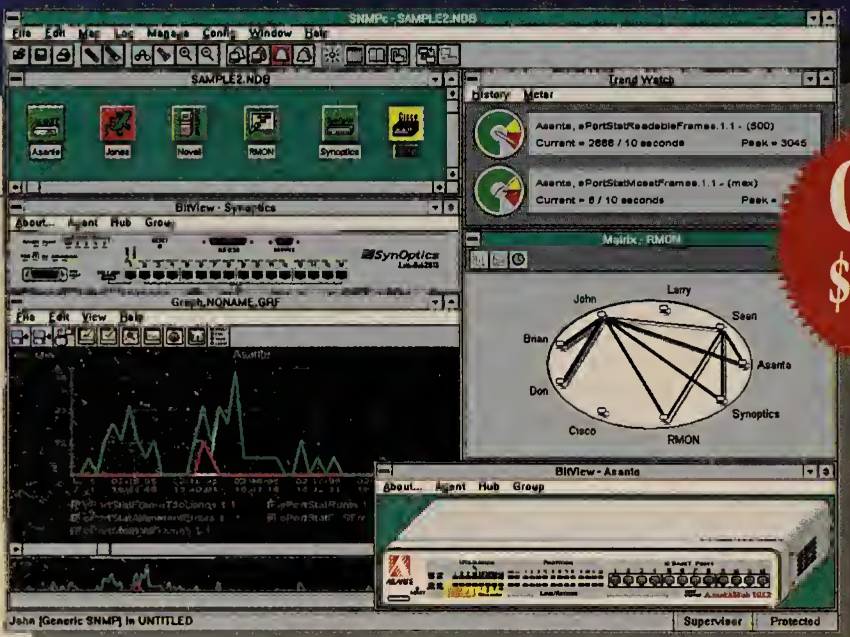

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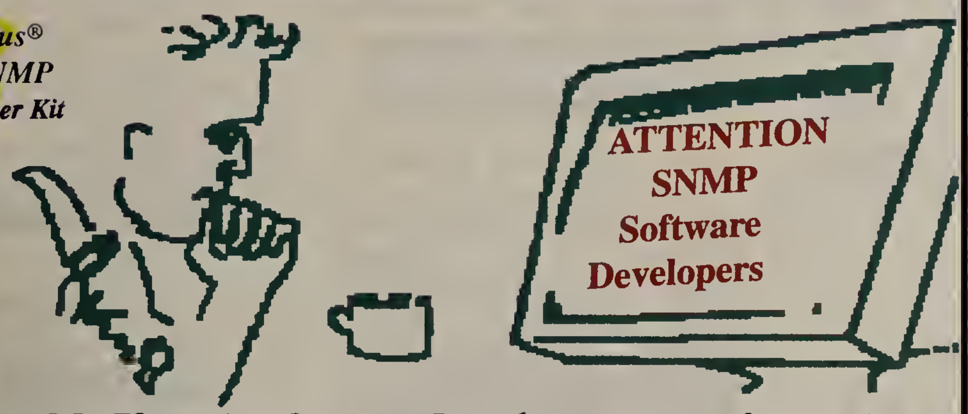

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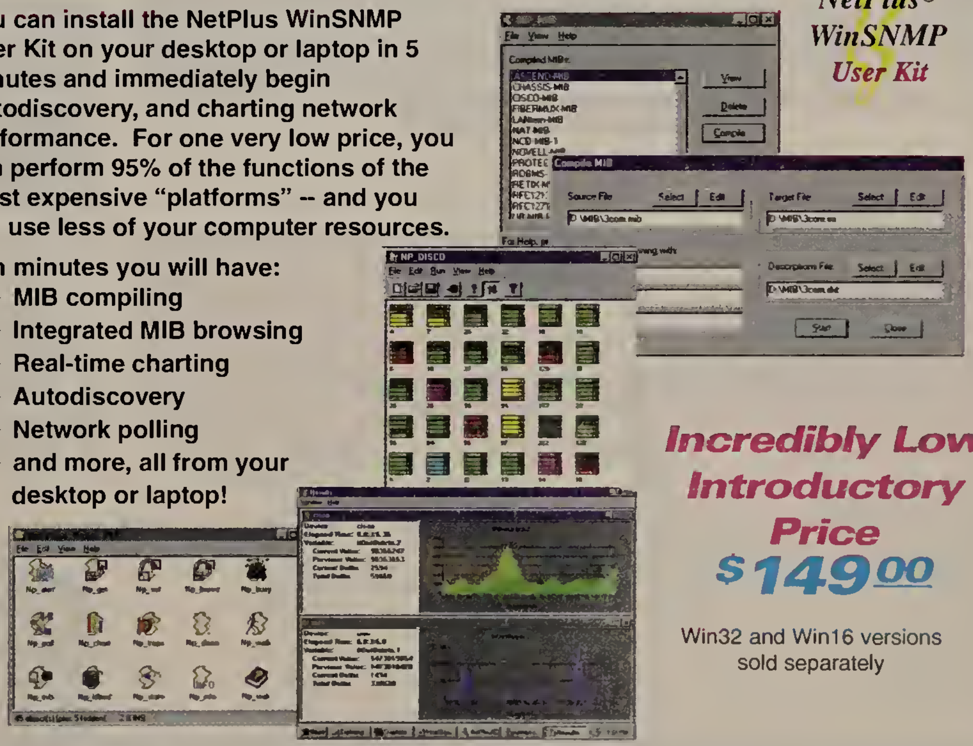

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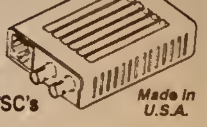

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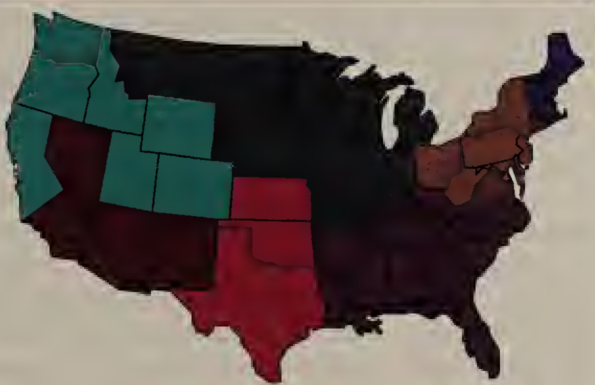

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EDITORIAL INDEX

3DV.....13
A
AccountMate.....23
AimQuest.....15
Airtouch Cellular.....15
Ameritech.....15
Apple.....8
Ariel.....15
Ascend.....6,13
Axent.....23
B
BackWeb.....44
Banyan.....8
Bay.....6
Brixton Systems.....44
BRM.....44
C
Cadia.....16
Caere.....17
CheckPoint.....44
Cisco.....6,13,27
CLI.....6
Compaq.....34
Compatible Systems.....13
Corel.....6
D
Diamond Lane.....15
Digital Island.....6
Digital Pathways.....23
F
FileNet.....19
FORE.....13,16
G
Galacticomm.....18
H
HAHT.....44,45
HP.....16,17,34,28,30
I
IBM.....1,13,27,28,30,38
Informix.....6
Intel.....17
Interphase.....15
L
Lucent.....13
M
Madge.....13
Metricom.....15
Microcom.....1
Micron.....34
Microsoft.....6,8,18,22,28,30,45
Microtest.....23
Motorola.....16
N
NBase.....17
Netcom On-Line.....15
NetICs.....6
NetPro Computing.....17
Netro.....15
Netscape.....6,18,22,27,38
Neurotech.....23
NexGen SI.....19
NeXT.....8
Novell.....1,8,10,17,26
Novera Software.....44
O
Open Market.....1,44
Oracle.....22
P
Packet Engines.....17
Pony.....34
Precept.....8
Prime Cable.....15
ProSoft.....38
Proteon.....6
PSINet.....6
Q
Q+E Software.....45
R
RadioMail.....15
Radnet.....19
ReCor.....38
Rockwell Semiconductor.....1
S
Saros.....19
Sheridan.....19
Shiva.....1,10
SoftBank.....6
Software Artistry.....13
Software.com.....19
St. Paul Software.....23
Stonybrook Services.....13
Sun.....6,28,30,44
Symantec.....23
Symbios Logic.....17
U
U.S. Robotics.....1
V
Vinca.....10
Visigenics.....22
VTEL.....6
VXtreme.....6
W
Watermark.....19
WorldCom.....6

ADVERTISER INDEX

Advertiser	Reader Service#	Page#
3COM		2-3
Ace Comm	223,254,260	41
Cascade		48
Castle Rock Computing	252	40
Cisco Systems		7
ComNet		33
Eastern Research Inc.	225	40
Five Star Productions		31
*Government Best Buys		25
Hummingbird Communications		20
IBM		4,14
Internet Expo		32
*Kingston Technology		21
*M.E.N.		21
Mecklermedia		18
OpenText Corporation		9
Oracle Corporation		11
Solunet Inc.	298	40
Sync Research		47

Network World Fusion - www.nwfusion.com

Anixter
Bay Networks
Compaq
Exide
Make Systems
Microsoft Internet Explorer
Network Appliance
Open Connect
Paradyne
Racal Data Group
SysKonnect
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WEB WATCH: PART ONE

First in a series

A tale of three start-up companies

By Chris Nerney

Internet and intranet start-ups want your business in the worst way.

But with so many to choose from, what should you look for to ensure the companies you pick will help your business? How do you avoid those that will waste your time or go bankrupt, and turn your well-thought-out technology investment into a nightmare?

To give you some ideas, we will be tracking three Web-related start-ups throughout the year in a series of stories. While this is a small sampling of the Internet/intranet companies emerging, these companies should represent the types you will run into. The following stories explore how BackWeb Technologies, HAHT Software, Inc. and Novera Software, Inc. got their starts.

WEB WATCH: NOVERA SOFTWARE, INC.

Focusing on Java's enterprise role

Burlington, Mass.

Herb Rush was looking for another project.

The longtime software developer founded Unix-to-mainframe connectivity vendor Brixton Systems in 1990, using capital raised from friends and family. But he sold the company in 1994 to Computer Network Technology Corp. for $18.5 million.

Then, in 1995, Rush started hearing plenty about Java, Sun Microsystems, Inc.'s hot new programming language. "When I saw Java, I saw how IT could use this technology," he says.

Rush also saw a major obstacle: "There was no infrastructure to handle large-scale deployment of Java," he says.

So he set about building a software platform for deploying Java applications across large networks.

Rush formed Novera Software, Inc. in October 1995, using $100,000 of his own money as start-up capital. (Novera has since raised $2.3 million in venture capital funds.)

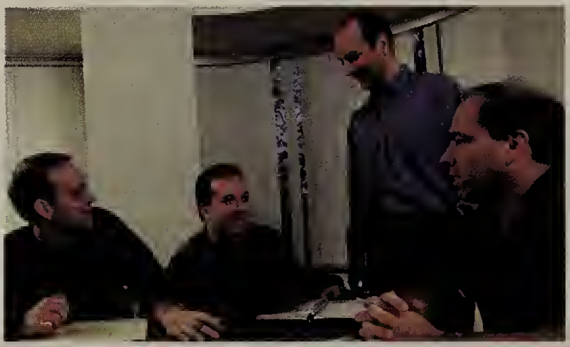
For several months, he toiled alone in his Cambridge, Mass., apartment. Progress was slow, he recalls. "It was frustrating working with the early Java tools," Rush says.

But he clung to his vision of a Java-based application platform, and by winter he was ready to look for partners. One night last February, Tim Hamilton, a former coworker from Brixton who had since moved to Internet commerce software vendor Open Market, Inc., brought Open Market engineer Michael Frey over to Rush's place.

"I saw the demonstration at Herb's that night and quit my job at Open Market the next day," says Frey, who is now Novera's director of system engineering. Hamilton joined the pair a few weeks later as vice president of sales. Rush is president and chief executive officer.

Moving the operation to a small office in Cambridge, the three put in the typical number of megahours required of any start-up, spending so much time in daily lunchtime meetings at a local Chinese restaurant that they earned a permanently reserved table.

Rush knew Novera was gambling on an unproven technology. "We were betting the whole thing on Java," he says. "We were worried about Java materializing, and we didn't know if it would be successful or whether Microsoft would crush it."



Novera's top techies (l. to r.): Reichgut, Frey, Hamilton and Rush. "We're not about 'twirling dukes' and that whole world," Reichgut says. "We're about real business applets running on any kind of platform."

STELLA JOHNSON

After about a year of development, the company has just released its first product, Novera Enterprise Platform Internet Computing (EPIC). Rush says EPIC is the only Internet computing platform written entirely in Java, although it supports ActiveX, as well.

Novera's target market is Fortune 500 companies. To handle Internet and intranet computing, he says, those large enterprises need application services that can run off any platform.

Richard Reichgut, who left Sun Microsystems after nine years to sign on last fall as Novera's director of business development, says Novera comes along at a time when Java applications are maturing and companies are looking hard for no-nonsense ways to use them.

"We're not about 'twirling dukes' and that whole world," he says. "We're about real business applets running on any kind of platform."

Of course, building a better platform is one thing; the real key to success for Novera is getting the word out to prospective customers and educating the market. ■

PROFILE

Founded:	October 1995 by Herb Rush, Tim Hamilton and Michael Frey
Headquarters:	Burlington, Mass.
Employees:	25
Primary business:	Java-based Internet application platform
Flagship product:	Novera Enterprise Platform Internet Computing (EPIC)
Competitors:	None
Investors:	Charles River Ventures, Matrix Partners and John Mandile
How it makes money:	Selling Novera EPIC for $10,000.

WEB WATCH: BACKWEB TECHNOLOGIES

Getting 'pushy' on the 'Net

San Jose, Calif.

Eli Barkat had a mission: Hit one out of the park.

Barkat, a founder and vice president of business development at BRM Technologies, Ltd., was responsible for developing new business opportunities for the Israel-based company.

By early 1995, he and BRM already had one big success under their belts: Check Point Software Technologies, Ltd., a spin-off that has become a leader in the firewall market. BRM wanted to launch another start-up, this time in another part of the Internet market.

"I had three or four months to come up with three ideas," Barkat says. "We figured one of them — at least — would fail in the process of being developed because the market would change; one of them would make it, and the other one should be a home run." Barkat assembled a small group to focus exclusively on ways to improve the Internet.

CINDY CHARLES

BackWeb's Kelsey Selander and Eli Barkat want to have an exponential increase in broadcasting channels this year.

"We thought we should totally reverse the Web model from one in which the user is the one who has to look for information all the time, to one in which the information looks for the user," Barkat says. By late last year, this concept would become known as push technology.

In January 1995, Barkat brought the idea for BackWeb Technologies to BRM's directors. It was rejected. 'BRM isn't in the content business,' Barkat says he was told.

The group reconvened and changed BackWeb from a content-based model, in which clients are provided information, to a technology model, in which the company would sell servers to customers who could set up their own information channels.

That revised plan was approved last February by BRM, which gave BackWeb $1 million in start-up funds. Since then, BackWeb has attracted another $16.5 million in venture capital.

Soon after the plan's approval, Barkat, now president and

WEB WATCH: HAHT SOFTWARE, INC.

Banding together around Java

Raleigh, N.C.

It's not every Internet start-up that can claim a legendary rock band as a catalyst, but the original idea for HAHT Software, Inc. can be traced in large part to the Allman Brothers band.

CHARLES GUPTON

Three of the four HAHT Software founders. From left to right: Holcomb, Hebert and Archer.

As Rowland Archer, HAHT cofounder and chief operating officer, tells it, "One of my friends runs the Allman Brothers Fan Club. He told me they were interested in getting an online presence. So I contacted [drummer] Butch Trucks, and he suggested a Web page."

Archer, who started surfing the 'Net in early 1995, thought developing a Web page would be a good way to learn some Internet technology. Problem was, the tools necessary to create the kind of Web site Archer thought could do the Allman Brothers justice did not exist.

"I wanted the site to be dynamic," he says, "but every tool I was using focused on just one thing — one built the page, one built a script, etc."

It was spring 1995. Archer was still working at Q+E Software, Inc., a company founded in 1986 by Richard Holcomb and Tyler Bennett. The pair had sold Q+E to Intersolv, Inc. in 1994, and at the same time that Archer was trying to do justice to the Allman Brothers in cyberspace, Holcomb and Bennett were sizing up the Internet as the next big thing.

Holcomb, Archer and Bennett compared notes with each other and with Jim Hebert, another Q+E executive. Their conclusion: "We decided there was a tremendous opportunity in creating tools that would allow people to build Internet applications," Holcomb says.

In June 1995, the group formed HAHT Software, Inc., pooling less than $500,000 in personal funds.

The name HAHT is an acronym derived from the cofounders' names and represents their bond of friendship, according to Holcomb, the company's chairman and chief executive officer.

Since founding the company, they have picked up about $7 million in venture capital from a variety of sources.

Last July, HAHT unveiled its flagship product, HAHTsite, an integrated, open tool set designed for corporate application developers and sophisticated Web content builders.

Holcomb says HAHTsite combines all the elements necessary for Web-based application development into one comprehensive environment.

"The key to putting out sophisticated applications for the masses is to provide tools to make that job easy," he says.

The market for Web-based application development tools appears sizable.

Cambridge, Mass.-based Forrester Research, Inc. estimates that by 1999 the market will hit $1.2 billion. ■

PROFILE

Founded:	June 1995 by Richard Holcomb, Rowland Archer, Jim Hebert and Tyler Bennett
Headquarters:	Raleigh, N.C.
Employees:	65
Primary business:	Web-based application development tools
Flagship product:	HAHTsite Internet application builder
Competitors:	Microsoft with its Visual InterDev tool
Investors:	Hummer Winblad Venture Partners, JMI, Menlo Ventures, High Street Partners, Sippl/Macdonald Ventures
Catchy marketing phrase:	"Change nothing. Change everything."
How it makes money:	Selling HAHTsite Application Server ($2,495 per CPU), HAHTsite Integrated Development Environment ($995 per user) and HAHTsite Software Development Kit ($695 per user)

---

chief executive officer, moved from Israel to New York to oversee the development of BackWeb's technology. After just nine months, BackWeb relocated here last spring.

Launched last September, the BackWeb system is designed to enable Web site owners to create Internet "channels" that deliver personalized content directly to users. For example, a company with a BackWeb server can broadcast information on product prices and availability to its customers.

A key feature of BackWeb is its Polite Agent technology, which allows information to be downloaded unobtrusively via unused bandwidth (hence the name BackWeb), even when users are working on other applications online.

Industry projections indicate the potential market for content delivery is huge.

A recent study conducted by The Yankee Group in Boston predicts that by the year 2000 about 30% of all Internet revenues, or $5.7 billion, will go to information-push technology providers.

Those kinds of numbers draw a crowd, and a number of push-technology vendors have started up in the past year.

The first such company — and the one that has attracted the most publicity — is, of course, PointCast, Inc.

BackWeb executives say the two companies' products differ in critical ways.

"PointCast is a content aggregator. They provide news and information," says Kelsey Selander, BackWeb's vice president of marketing. "We're a tool. They're a service."

Of the other push companies, she says, "Every other company in this space is in a niche in some way. We are much broader in our approach." BackWeb now offers 28 broadcasting channels. Selander says BackWeb plans an exponential increase in 1997. "Our goal is to have over a thousand channels by the end of this year," she says. ■

PROFILE

Founded:	October 1995 by Eli Barkat
Headquarters:	San Jose, Calif.
Employees:	60
Primary business:	Web-based personalized information delivery
Flagship product:	BackWeb Server
Competitors:	Marimba, Intermind, CompassWare
Investors:	Goldman Sachs Group, L.P., SoftBank Holdings, Trinity Ventures, Polaris and Evergreen
Catchy marketing phrase:	"Build your own personalized broadcast channel."
How it makes money:	Selling BackWeb server channel licenses, with prices starting at $10,500. Client software is free.

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Periodicals postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #0385662. Network World (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 161 Worcester Road, Framingham, Mass. 01701-9172.

To apply for a free subscription, complete and sign the qualification card in this issue or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-820-7444.

Nonqualified subscribers: $5.00 a copy; U.S. - $129 a year (except Washington, DC, Utah and Florida $136.74); Canada - $160.50 (including 7% GST, GST #126659952); Central & South America - $150 a year (surface mail); Europe - $205 a year (surface mail), all other countries - $300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

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Backspin

Pondering ‘Why a giraffe?’ and other imponderables

Questions, questions, questions. My son is almost four years old, and when we talk, it seems that every other question is “Why?”

“Dada, why are giraffes very tall?”

“So they can reach the leaves at the tops of trees.”

“Why?”

“Because that’s where the best leaves are found.”

“Why?”

“Because that’s where very few animals can reach, so the giraffes don’t have to race to get the leaves before other animals do.”

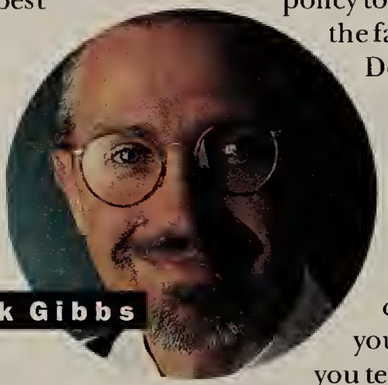
“Why?”

“Because!”

“Why?”

“Arggggh!”

“Why?”


Mark Gibbs

That’s bad enough, but it doesn’t end as you get older, it just gets more complicated, particularly in the computer industry. The bit biz is full of things that need questioning.

Many of the questions we routinely ask concern why things don’t work. “Why doesn’t this screen display 24-bit color?” “Why does this software keep bombing?” “Why does this computer keep overheating?” These are the kinds of questions that are asked about a zillion times each day.

> *If software crashes due to a bug, should you be compensated for lost time and/or revenue?*

Here at the Gibbs Institute, we’ve been pondering some even deeper questions, and we’ve decided to share our thorniest problems in the hopes you might be able to provide us with insight or even answers, after which we can all go and have a beer. Here is a sampling of the queries that are driving us to drink:

1. Is it OK to “borrow” someone else’s software to try it out when you’re thinking of buying it?

2. Is it OK to use this borrowed software for a day? A week? A month?

3. Should you register and pay for shareware that you only use once each month?

4. Should you register and pay for shareware that only does half of what it claims to do?

5. If someone offers you a copy of branded software with a complete manual set and all the trimmings for anything significantly less than the regular market price, is it your responsibility to find out if it is counterfeit?

6. Even though it is against company policy to write down your password, is the fact that you do so defensible? Do you care?

7. If you find you have access to a database that contains information about compensation in your organization, is it improper to try to find out how much your coworkers earn? How about your boss? Your CEO? Should you tell others?

8. Should you report bugs in software to the vendor if they don’t provide free support?

9. Is it reasonable that vendors don’t provide toll-free support for their bug-ridden software?

10. Are virus writers really evil or just stupid?

11. If software crashes due to a bug, should you be compensated for lost time and/or revenue?

12. What is that gross sticky stuff that grunges up your keyboard after about six months?

13. Is it right that you make private phone calls from work?

14. Even though you know you shouldn’t browse non-work-related Web sites from your desk, do you feel it is justifiable? Do you care?

15. Is it reasonable that your company should decide to record telephone calls “to ensure customer satisfaction?”

16. Is it reasonable that the government should be able to intercept and read any piece of E-mail or document you create or send? How about your company?

17. Is it reasonable that vendors who get your business should sell your data for profit?

18. What is the answer to everything . . . you know, life, the universe and everything? (I threw that in just in case anyone has a clue.)

These are thorny, knotty and irritating questions. None can be adequately answered with just a yes or no. If you have any real answers, drop me a note at mgibbs@gibbs.com or call me at (800) 622-1108, Ext. 504. If you call, keep it short, buddy.

’NET BUZZ

The latest on the Internet/Intranet industry.

By Chris Nerney

YOU TOO CAN GAMBLE WITH SOMEONE ELSE’S RETIREMENT MONEY Used to be you had to go crawling to some slick underwriter for the privilege of selling shares of your company’s stock to the public.

Then, last year, a small number of firms realized they could eliminate the middlemen and fleece strangers by “self-underwriting” their IPOs over the Internet.

Now everyone can get in on the fun thanks to **Prestige,** which has just released the *Internet IPO Handbook,* a reference manual for companies interested in raising up to $1 million in capital through a direct public offering.

PrestigeIPO is one of several online services that helps start-ups and established companies use the Internet as a marketing vehicle to raise capital from private investors. The companies PrestigeIPO works with tend to be smaller firms that are usually overlooked (read: blown off) by traditional underwriters.

The handbook is available in print, on disk or can be downloaded from PrestigeIPO’s Web site (www.prestigeipo.com). The book costs $195 until the end of this month and $395 starting Feb. 1.

IS IT ALWAYS THIS FESTIVE AROUND HERE? With a brand-new president and chief executive officer in place, **Wayfarer Communications, Inc.** plans later this month to unveil another entry into the ever-crowded push technology market.

The product, code-named Magnets, is based on Wayfarer’s QuickServer Web-casting technology. A company official said the Magnets server will be easier to install than its Web-casting predecessor, QuickCast, which was released last October. Wayfarer, based in Mountain View, Calif., is targeting business managers at large corporations.

This is the first product rollout under the watch of **John Laing,** the former Symantec Corp. executive who was named president and CEO of Wayfarer last month, just as the office holiday party season kicked off.

Guess the guy finally has to do some work.

DON’T LET YOUR TEENAGE DAUGHTER KNOW ABOUT THIS **Navitel Communications, Inc.,** an Internet access device vendor, has announced the Navitel TouchPhone, an Internet screen telephone designed to let virtually anyone send and receive E-mail and surf the Internet.

TouchPhone uses Microsoft Corp.’s Windows CE operating system and Microsoft Pocket Internet Explorer Web browser technology. In addition to E-mail and voice mail, TouchPhone includes software that enables users to download personalized content from the Internet throughout the day, according to Navitel.

The product is aimed at consumer and business markets, and is scheduled to be released this spring. TouchPhone is priced between $299 and $499, depending on the modem and monitor you choose.

Navitel, founded in 1996, is based in Menlo Park, Calif.

WHITE PAPERS? WE GOT ’EM Providing product information will be the leading use of the Internet for high-tech companies this year, according to a December survey of marketing executives from 25 technology firms.

The ActionTrack Survey, by San Francisco-based marketing consultancy **Cognitiative, Inc.,** showed that 100% of the surveyed technology companies using the ’Net this year will provide online information about their products, while 92% plan to generate sales leads through cyberspace.

The percentage of surveyed companies that will conduct sales transactions on the Web jumped from 36% in 1996 to a projected 68% in ’97.

’Net Buzz is going public. It will be a high-quality offering, made via Internet spam. If you want to get in on the ground floor, send us your most intriguing and reasonably accurate Internet and intranet news items. Contact Chris Nerney at cnerney@nww.com or (508) 820-7451.

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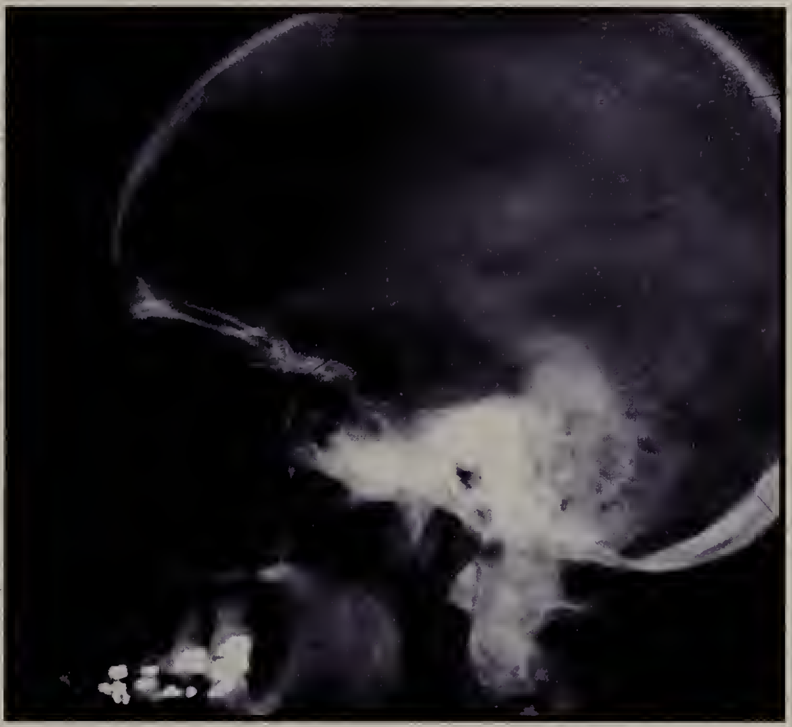

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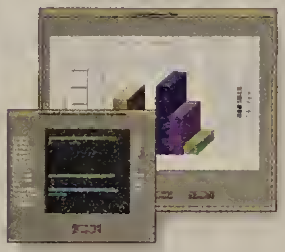

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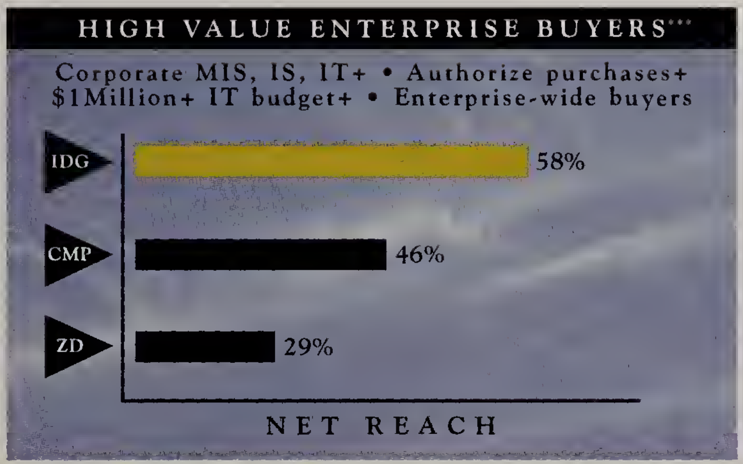
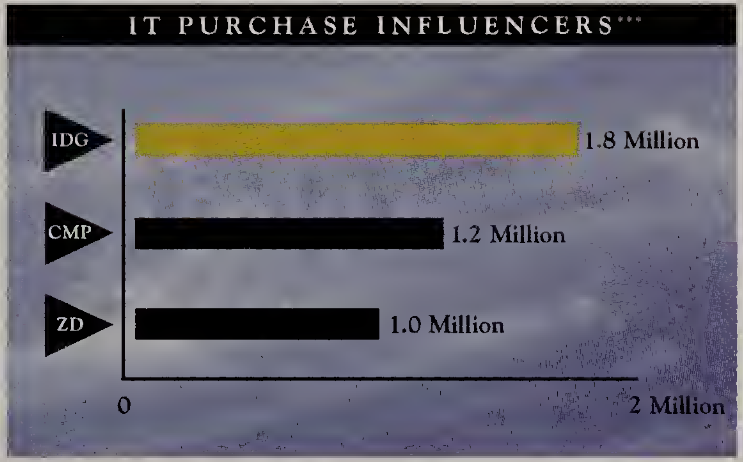


In just one week, EnterpriseWorld's reach to high value enterprise buyers is 26% stronger than CMP's enterprise group and 100% stronger than ZD's "one book" model.



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**Source: IDG Corporate Database and CIMS v3.0 IntelliQuest ***Source: CIMS v3.0 IntelliQuest; IDG=1x CW, IFW, NWW; CMP=1x IW, CWK, NC; ZD=1x PCW

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